THE physical therapy REVIEW

34th Annual Conference
American Physical Therapy Association
Hotel Statler Detroit, Michigan
June 23-28, 1957

The Physical Therapy Student—His Selection and Education
— WORTHINGHAM

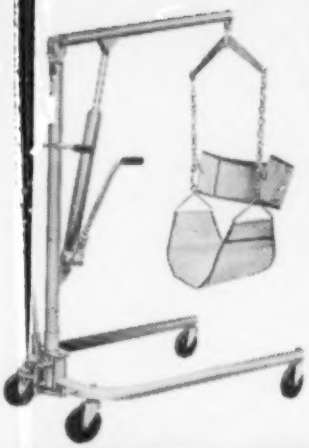
The Physical Therapist—His Professional and Social Responsibilities
— LEE

The Lower Extremity Toddler Amputee — RADFORD and STEENSMA

Aids for the Quadriplegic — BLAKE and BLAKE

Volume 37, Number 1 **January 1957**

PUBLISHED MONTHLY BY
AMERICAN PHYSICAL THERAPY ASSOCIATION



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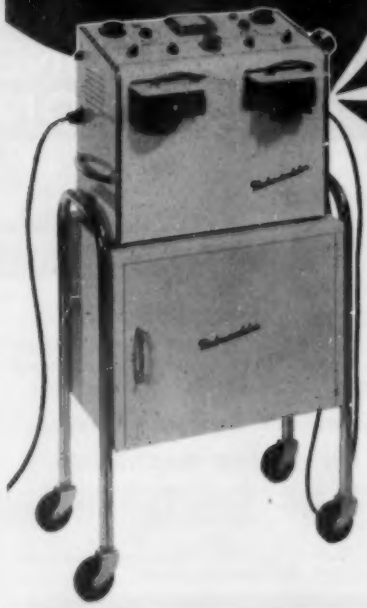

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4 Vol. 37, No. 1

published monthly by the
American Physical Therapy Association
at 1790 Broadway, Room 310
New York 19, N. Y.

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Membership in the American Physical Therapy Association is $20.00 a year, including a subscription to THE PHYSICAL THERAPY REVIEW. Subscriptions for nonmembers to THE PHYSICAL THERAPY REVIEW, $6.00 a year; $6.75 in Canada and foreign countries. Single copies 75 cents. (50 cents to members.) Reentered as second class matter August 11, 1949, at the post office at New York, N. Y., under the act of August 24, 1912.

The statements in the manuscripts published in THE PHYSICAL THERAPY REVIEW are made solely on the responsibility of the author. The American Physical Therapy Association does not assume any responsibility for statements contained therein. Manuscripts accepted for publication in THE PHYSICAL THERAPY REVIEW are for exclusive publication and may not be published elsewhere without permission.

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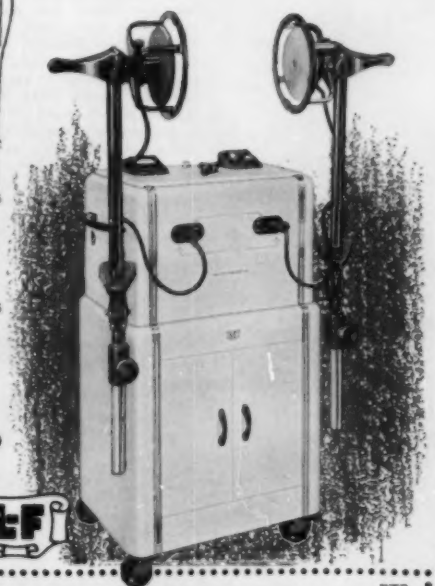

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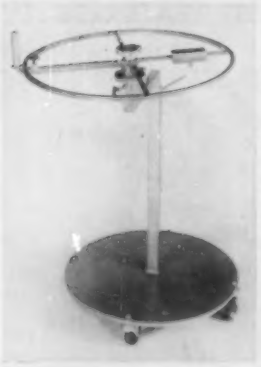

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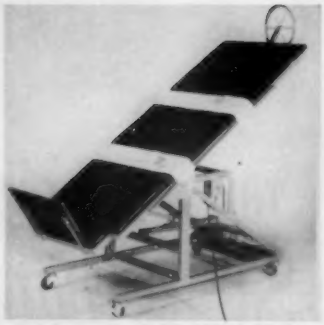

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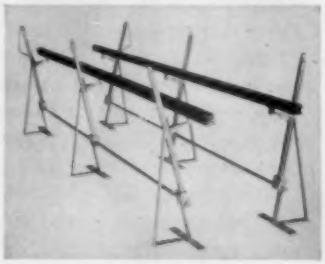

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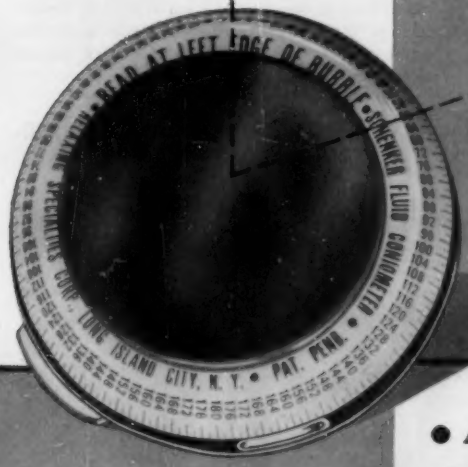

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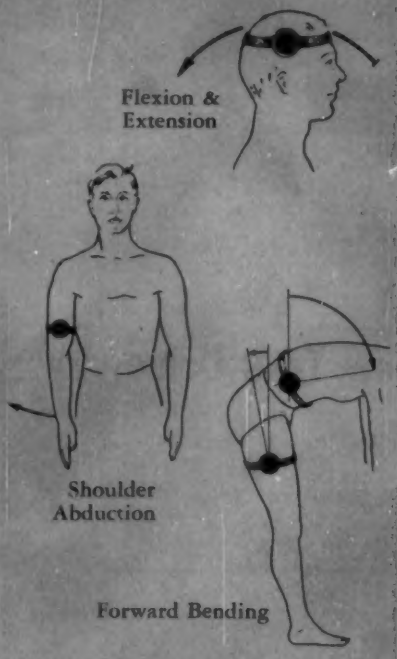

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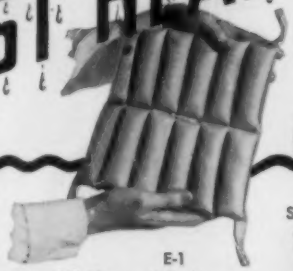

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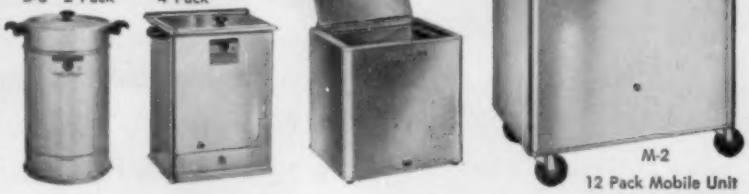

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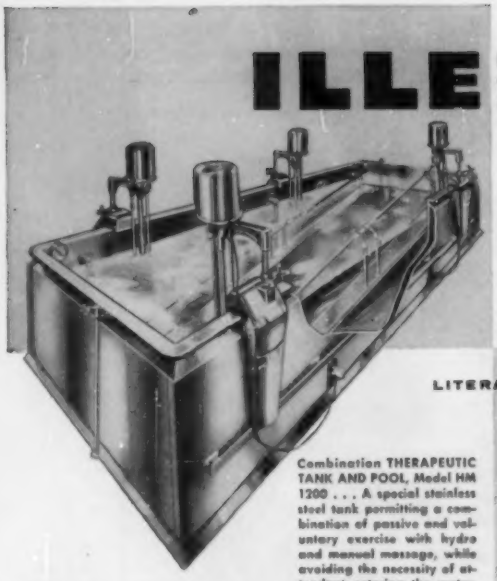

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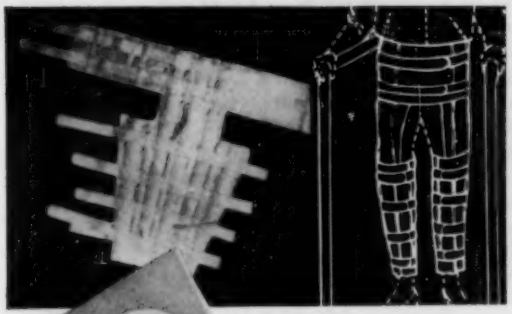

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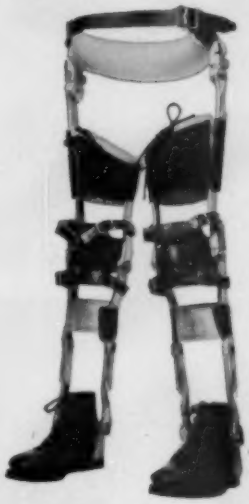

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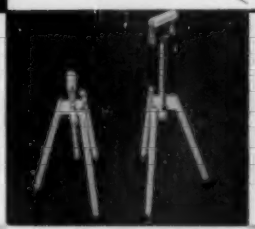

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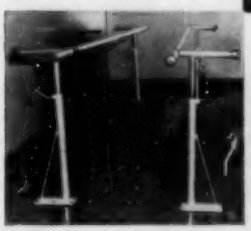

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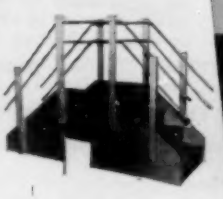

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Sources of Financial Assistance for Physical Therapy Student — 1956.

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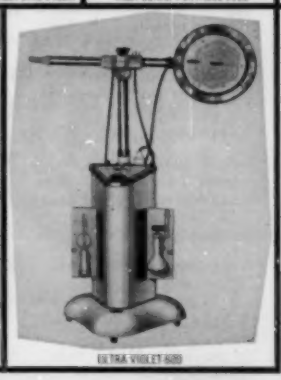

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Neurological Bases for Rehabilitation	University of Penn. & U.S. Office of Voc. Rehab.	Miss Mildred Wood General Laboratories Bldg. University of Pennsylvania 215 S. 34th Street Philadelphia 4, Pa.	March 11 — 22, 1957
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Practical Management of Poliomyelitis and Principles of Rehabilitation	Baylor University College of Medicine, Southwestern Poliomyelitis Respiratory Center & Jefferson Davis Hospital in cooperation with The National Foundation for Infantile Paralysis	William A. Spencer, M.D. Medical Director Southwestern Poliomyelitis Respiratory Center Education Office 1300 Kenwood Lane Houston, Texas	Feb. 25 — Mar. 1, 1957
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The Physical Therapy Review

Official Publication of The American Physical Therapy Association

Vol. 37 January 1957 Number 1

The Physical Therapy Student— His Selection and Education

Catherine Worthingham, Ph.D. (U.S.A.)

The topic upon which I am speaking is a difficult one for it is necessary not only to think of the student of today as the physical therapist of tomorrow, but the physical therapist of thirty years from now.

The social structure of peoples throughout the world is experiencing change. Likewise knowledge in many fields is expanding rapidly to meet the change. The professional person, therefore, finds himself in a position in which he must have a better understanding of himself and the world in which he lives. He needs to know how to live and how to recognize and analyze the social and economic elements of the problems with which he is faced.

The professional person in the health field must find ways of developing and preserving concepts and ideals of service to the patient and the community. His personal philosophy must be consistent with public welfare. He cannot isolate himself but must assume the same responsibilities and duties as other citizens.

Present day medicine is being forced to give increased attention to chronic illness, geriatrics, the developmental problems of childhood and the disabilities arising from emotional conflict and maladjustment. Physical therapy, too, must adjust to these changing needs. To do so requires a thoughtful consideration of the factors of student selection and education for the profession.

As a professional person the physical therapist must have high objectives. To prepare him only for earning a living, is to prepare him for a vocation not a profession. Curiosity should constantly goad him toward new accomplishments. He should never be in a state where he has permanently made up his mind. He must value liberty as the very nature of exploration and progress and regard it as essential to the goal of better, richer, and more satisfactory lives for all.

The professional person in a medical setting differs from the pure scientist, whose objective is not necessarily humanistic. Medicine is concerned with the wants of society—to alleviate pain, prevent disability, and postpone death. It is dedicated to the application of scientific knowledge for the survival of man.

The professional person in the medical field also has need of the liberal arts for its emphasis on the social aspects of human behavior. Too heavy weighting of the educational program in the sciences may result in disregard of the psychological and social factors. Science is important, however, not just for the facts which are learned, but because in it one finds a way of giving order and intelligibility to the facts of the universe. Science forms a framework for building new information and testing it, and also

Director of Professional Education, National Foundation for Infantile Paralysis.

Read at the Second Congress of the World Confederation for Physical Therapy, held in New York, June, 1956. This paper will appear in the published *Proceedings*.

provides a vocabulary with which to use scientific information.

It should be the privilege and in fact an inescapable assignment for every professional student to do at least one piece of research, by himself, no matter how simple a problem it may be. It will take time, reading and a lot of thinking. It will teach him, as nothing else can, the need for an inquiring, observing approach to the things he otherwise accepts as assured.

Also with the world in the atomic age, a fair knowledge of science and scientific vocabulary is advisable if he is not to be the slave of the scientific specialist.

The physical therapist will need the essential tools of reading, writing, mathematics, and history, as they form a basis for exchange of information and for molding together the fragments of society. They also are a requisite for the cultured, literate, and civilized person.

Physical therapy, as is the case with many other professions, is faced with a need for well educated people who can fill a number of job requirements. The changing pattern of medical care with its emphasis on the total needs of the patient has greatly increased the demand for well prepared personnel. The schools are faced therefore with the necessity of educating larger classes and for preparing physical therapists who are qualified to work: at the staff level in large institutional or agency programs; alone in small departments; as administrators of small or large departments; as specialists in the treatment of a specific type of disability; as clinical supervisors of students; as staff members or directors of schools or as participants in basic or clinical research.

The problem, then, is to design a program of education for the well selected student which will give him the preparation for working at the staff level and a foundation on which he can build toward other objectives. Because of the great need for physical therapists in all the categories of employment, the training of the student as a technician who can serve only in a limited capacity is shortsighted.

Also it is not possible to determine upon entrance those students who will wish to undertake, or who will be selected for, more specialized positions. The student who is determined to do clinical physical therapy ends up in research. The one who under no circumstances will consider teaching becomes the director of a school. Therefore, the program at the undergraduate level must give sound, basic training for the profession of physical therapy. The task before us is to develop in so far as possible all those qualifications of the students that are important to their profession. Specialization can take place then at the graduate level without penalizing the student or the profession. If the foundation is sound he can afford to proceed as the saying goes "to learn more and more about less and less."

Obviously, the student who is to study physical therapy should have the potential for developing into a professional person who can be entrusted with responsibility in the health field. At the risk of becoming involved in those statements of personal characteristics which seem to describe the ideal person for any undertaking, I wish to mention a number which seem to be both essential and desirable with some of the reasons for their selection.

The physical therapist on the basis of the physician's prescription gives direct treatment to the patient with a disability. That treatment can be only as good as the ability, knowledge, and skill of the physical therapist. The use of judgment in the modification of the treatment to the day by day condition of the patient is required. The mere teaching of routines, no matter how skillfully presented, will not suffice.

The physical therapist must be able to obtain cooperation of patients of all age groups, personality types, and social levels. Unless he has sufficient breadth of interests and general background he will find himself lacking in some of the most useful tools for understanding and obtaining the cooperation of patients.

The profession of physical therapy requires the practical correlation of a considerable body of theoretical basic science with knowledge of the cause and effect of many diseases and other disabilities. The best student in theory, to be sure, is not always the best physical therapist, but a poor student cannot meet the demands of the field. One might add that knowledge without skill cannot be effective, but that skill without knowledge is potentially dangerous.

We have talked in broad terms of personal characteristics. Now let us consider a little more specifically the requirements for a student in physical therapy.

Basically we need the person who has the ability to become a good teacher. Note that I said "a good teacher"—by which I mean the person who has the knowledge and skill to help a patient help himself.

The professional person also takes responsibility for helping to build his profession as well as his own personal future. He has standards which will not permit succumbing to routine. He

observes carefully, records his observations accurately, and participates in research activities of his own or the group. He accepts the responsibility of being a member of the rehabilitation team.

Physically the student needs to have good coordination and at least average strength. It is important that he have good posture and body mechanics. Many aspects of physical therapy are hard work and the habitually correct use of the body will improve his efficiency and lessen fatigue. The physical therapist, also, should have flexible, strong and sensitive hands as much of the knowledge of the patient's condition and response to treatment will come from the feel of the tissues.

Personality traits are certainly important. The student should like people—all kinds and ages of people. Friendliness, kindness, and patience are essential. He must be sympathetic, but in such a way that it does not destroy the working relationships between therapist and patient. He should be dignified but not obnoxiously so, and should have inherent respect for other people. He will need emotional stability to stand the stresses of his own and others' problems. Leadership ability and pride in accomplishment will often provide the stimulus which carries the patient over the rough spots and keeps him working toward his goal. There are those critics of physical therapy education who think that the personality element is the crucial one and that there is no need to "overeducate" a physical therapist. One would not minimize personality, but much more is required.

Good working habits, whether they are already established or have to be acquired are essential. Industry, conscientiousness, personal neatness and cleanliness, punctuality, attention to detail and, most of all, the ability to give his work complete attention are essential. The physical therapist who is thinking about the baseball game or his date for the evening will give the patient routine care at best.

The work load of a physical therapist is heavy and is likely to be so for the foreseeable future. We all know how few physical therapists are available and how great the need is for more. Therefore, organizational ability has importance, not only for the individual treatment plan but for the daily program. Having materials and equipment ready, records and schedules up to date, and the use of aides for carefully planned services can result in good treatment for more patients.

One cannot pass over the characteristics of the physical therapist without referring to character. Honesty with himself and others, tolerance of the opinions of others, and faith are qualities which grow with experience and personal relationships. As Woodrow Wilson one said, however, "The man who sets about to achieve 'character' makes himself ridiculous. Character is the by-product of a quest for other goals."

The selection of students who have or are likely to develop the characteristics and qualities which we have summarized is difficult. An interview will indicate some personality factors and can also be used to explore the student's ability to handle problems, his vocational and community interest, and to inquire into his plans and goals. School records may help but only if one knows the school. Testing procedures can give additional information. Written recommendations unfortunately seem to reflect the ability of the writer to dodge in a pleasant way the things that would be most helpful, his inability to judge the student, or his inability to present his evaluation effectively.

Given a reasonably acceptable fund of information about the student upon which to base selection, the next problem for the teacher is to develop the student's potentialities through the educational program.

As James M. Landis once said in a commencement address at Princeton, "There is no teacher worthy of his salt but who has been dismayed both by his own inability to portray a subject adequately and also by the unwillingness of a class to put forth the intellectual effort required to receive it."

Good teaching requires youth in spirit, if not in years. It is more important to have a faculty willing to try new ways of teaching than willing to follow a particular pattern. Given a group of able teachers, each of whom possesses specialized knowledge, who is accessible to undergraduate and graduate students and to each other, the intellectual growth of the student will be nurtured in an environment where the same kind of "team work" prevails in teaching that will be expected of the student in his clinical experience and later as a physical therapist.

The truly professional teacher is so in proportion to the way he uses his talents and education not just to give students what at the time they think they want, but what in so far as he can discover they really need. Unfortunately, as Professor Gregg has so aptly said, "Many teachers do not wish to receive anything from their students except their own notions as little damaged as possible, by their journey from teacher to student and back again. These teachers

run a sort of lending library of facts, figures and ideas."

We need teachers who value the student as well as the course, and who recognize the student's problems, emotional immaturity, and defenses against anxiety. Factors such as these may be serious blocks to the student in his ability to assimilate knowledge and to apply it to the treatment of the patient.

The aim of physical therapy education must be to equip the student with the basic facts and principles upon which he can continue to build in the future. It is often hard for the teacher to project his own thinking toward the needs of the future. The tendency is to take the easy way and teach what he was taught, far too often, even in the same way.

The emphasis should be on the implantation of fundamental facts in the student's mind and guiding the mind of the student to use the facts constructively in sound processes of thinking. Teachers can learn to encourage orderly process of thought on the part of the student which will enhance the value of the factual knowledge he acquires. The teacher's own orderly processes of defining a problem, organizing material, reducing unnecessary duplication in presenting it and yet providing for needed repetition to establish a principle, idea or technic can be invaluable to the student. Assisting the student to discover and define problems is frequently more valuable than the actual solving of them.

And last but not least, the teacher must not teach at the level of mediocrity. The sound development of the profession requires a balance between those who will practice at the staff, supervisory, administrative, and teaching levels. The superior student must be stimulated as well as the average student.

Much has been said about teaching methods. Ironically enough, most first grade teachers are more advanced in teaching methods than the greater percentage of those responsible for the undergraduate and graduate teaching in our colleges and universities. The lecture method, with little variation, is still the rule of the day.

Certainly consideration should be given to reducing didactic time and substitution of problem situations. One wonders, when the teacher presents a principle and then a very carefully worked out example, whether the student really applies the principle or only accepts the teacher's example as something to stow away and produce when called upon.

The teacher who can think out loud with the student can do much to assist him in developing powers of observation, in giving curiosity free rein, in speculating on cause and consequence, and in supporting conclusion through fact or experimentation.

The opportunity for discussion and justifying real differences of opinion can help immeasurably to develop a critical and careful approach to subject matter. A student who has had the benefit of this type of instruction should be less likely to be taken in by the "systems" and "isms" with which he will be faced from time to time when he gets into the clinical field. He will be able to sort out those portions of the technics which are merely ritual.

Again quoting Professor Gregg, "The student must learn by actual participation in the program. He does not learn by listening to wise statements and sound advice. The learner's dynamic cooperation is required. Such cooperation does not arise automatically, however. It has to be provided for and continually encouraged. The learner tends to think in terms of unitary cause and effect rather than in terms of multiple interchanging forces."

Education is a very personal, individual and creative process rather than the passing of knowledge from one person to another. It cannot be hurried, which points to the importance of the integration of general and professional education throughout the college program to permit time for assimilation. If his program is carefully planned, the student's competency increases gradually and he forms habits of study and work which he is more likely to carry on after the completion of his formal education.

The student has to learn by experience how to see, hear, and feel the normal and departures from it. He cultivates curiosity as he learns and realizes that no detail is too small to merit questioning observation. Eyes, ears, and fingers continue to add facts to this storehouse of knowledge.

Too many students are content with the "what" and "how" but rarely inquire about the "why." As Professor Phillip Cabot has said, "The question that has not been asked cannot be answered." He points out further that students need to be helped to learn how to go about answering questions which ought to be answered, and to develop skills in discovering and defining the questions which ought to be asked. They need to realize that in real life they frequently will have to take action before they can get all the facts that they would like to have before deciding which is the right action.

Although physical therapy represents one of

the oldest forms of patient care, as a profession it is a relative newcomer to the constellation of medicine and medical associate professions. This fact is both a handicap and an advantage: a handicap, because recognition and appropriate support for a new field is hard to obtain; an advantage, in that as a new profession it is not bound by long established patterns and tradition. The challenge is to mold education and practice in a way which will best serve the needs of the patients and the medical profession.

Two of the greatest problems with which present day physical therapy education is faced are the rapidly increasing body of basic knowledge concerning the field and the consequent development of new technics of treatment which must be presented in their proper relationships within a curriculum which already is overcrowded.

Where should the student's instruction be given? How long should the training program take and what level of competency should be required of the graduate?

As has been stated before, the student must first of all become an educated person. He must be capable of communication and intelligent cooperation with the patient and all who are concerned with the patient. To accomplish such objectives requires that the student have a general as well as a specialized education, a combination which can best be obtained in the college or university with appropriate medical teaching and hospital affiliation.

Whether the educational program will require four years or more will depend upon the extent of the need for liberal arts as well as instruction in the major field. In this country a large percentage of the physical therapy programs are found in colleges and universities. It may be questioned however, whether many of them can be regarded as fulfilling the objectives in liberal arts as well as the physical therapy field. Physical therapy educators should consider the fact that the concept of a prerequisite requirement of a specified number of years of general education before entering upon professional training is finally being broken down, with the realization that general education, if it is to be effective, must be a continuing process throughout the undergraduate and graduate years.

The level of professional competency which should be required for graduation is subject to constant change as the field develops. The problem is to keep the level at a point which will provide the fundamental education necessary for participation as a staff person in a clinical program under the adequate supervision of an experienced physical therapist. It is unrealistic to think that the new graduate can be prepared as an expert in a specialized area of physical therapy. He should, however, be competent to accept a staff position under supervision in such a program on the basis of his fundamental education. Expertness in the specified field will come as the result of experience and further study.

Concepts and attitudes toward patient care are fundamental to any program in the health field. Some will be learned by precept but others will come about as a result of fundamental understanding of the humanistic problems involved.

The student must never be allowed to forget, even when he is involved in the details of symptoms, pathology, principles and technics of treatment, that he is preparing to treat a person with a disability not just the disability of a person. This approach will take considerable orientation of the teaching staff and their cooperation in formal class work and clinical practice. The example of the teacher or supervisor will carry as much or more weight with the student than any amount of vocalization.

The purpose of this discussion on subject matter is not to list the titles of courses and set the number of hours of theory and practice but rather to attempt to develop an approach to the training of the physical therapist. The approach must be sound educationally and one which will stimulate the physical therapist to become a professional person who will assume responsibility for his own continuing education as long as he lives.

From his general studies the student should learn to understand the social and physical environmental factors that affect health. He must appreciate the fact that the varying stages and rate of development of a person and the stresses and strains to which he is subject influence his physiological functioning. He should know that the psychiatrist, the psychologist, the sociologist, and the anthropologist are all extending scientific investigation into those areas of human behavior which previously have been considered to be approachable only through intuition. He will find the basis for growth and development of the personality through maturation and interpersonal relationships in the fields of human biology, psychobiology and clinical psychology.

In the pursuit of his specialized training he should come to understand pathology in relation to symptoms, signs, and the course of the disease or injury. He should also develop insight into the problems of the management of the patient with a given pathology, and his own particular

part in the process. He should realize that particular subject matter such as kinesiology is important to him only in so far as he is able to translate the knowledge into action which will assist the patients intrusted to his care to realize their potentialities for living.

The student, as he proceeds with his education should develop a concept of comprehensive patient care. He should recognize that rehabilitation is no mysterious process that requires special courses, elaborate facilities, and a different set of technics, but that it is identical with the process of comprehensive patient care which takes into account the patient's potentialities and goals—physical, mental, social, and economic.

The fine gradations between the normal and pathological are difficult to recognize. Certainly opportunity for close observation of the normal should be provided, through such contacts as nursery schools, children's homes, and home visits, or he will have no basis for an understanding of the abnormal.

His supervised clinical training should provide carefully selected experience with those types of patients with whom he is most likely to work in his professional experience. It should help him to recognize that prevention of disability is as important as the treatment of the severely handicapped. And it should teach him not to be bored and impatient with the treatment of the common complaints of mankind—headache, backache, and bellyache.

The common practice of rotating students through the various services for short periods of time to obtain experience with the largest possible variety and number of patients is of questionable value. It may very well contribute to the students preoccupation with the treatment of the disease or injury rather than the treatment of the patient with the disability. Relatively long term experience with a few patients is essential to appreciate the rate of progress which may be expected and the types of problems which must be met in the hospital or treatment facility and in readjustment to the community. It is probable that it does not take many patients to furnish the material necessary to teach physical therapy provided they are carefully selected and in a situation where all services contribute to the patient's needs in a coordinated manner.

The student also should have opportunity to study the actual and potential working relationships between physical therapist, doctor, social case worker, hospital and visiting nurse, and the clergy. He should appreciate the extension of the team within the hospital into the social and health agencies of the community.

His actual clinical experience should not be limited to the hospital but should include continued responsibility for a chronically sick person in his home. Such an assignment will help him to recognize the limitations of treatment, and the necessity for avoiding becoming angry or discouraged with himself or the patient if the patient does not get well. It should help also to teach him to wish to continue to give his best, regardless of the circumstances.

The clinical training of the student should aid the growth of his professional conscience, the development of insight and understanding of what disability means to the patient, as well as the opportunity to develop competence in the specific technics of his profession. It should also help him to realize that there is almost always more than one way of accomplishing a purpose; in fact, there are frequently many ways.

Oddly enough, although the establishment of rapport between the physical therapist and the patient is basic to successful practice, little time is spent in the educational program on the technics of communication and interpersonal relationships. To know how to draw out information from the patient, to hear what he has to say, to appreciate the strength in silent understanding, to recognize the importance of unconscious motivation and the signs of emotional and personality problems engendered by various illnesses is invaluable. To react in a way that will assist the patient rather than hinder him in his adjustment to his problems may make the difference between improvement and continued disability.

Likewise, if the physical therapist is to take his place as a functioning member of the treatment team the technics of communication and cooperation are essential tools.

When the student reaches the level of professional competence, he should be prepared to utilize his scientific knowledge and the skills of his profession which are applicable to the needs of the patient. Having the knowledge and skills are the tools. Deciding on the particular knowledge and skills required for a given patient is the art of physical therapy.

As a professional person he must be prepared to assume the responsibility and duties of a citizen. If the professional student, while in college, takes time to cultivate his mind and spirit and to study the problems of the society in which he will practice his profession, he will not form the habit of letting the professional preoccupy

him to the exclusion of the cultural and civic, a habit which will be difficult to overcome in the later crowded hours of his professional life.

Above all, the student entering a professional field must believe in the essential dignity of man. He, like Theodore Green, should be able to say, "Faith enables me to respect my fellow men, to tolerate their opinions when they differ from my own, and, in proportion to my maturity, to love them and find my greatest happiness in serving them."

In closing this discussion of the physical therapist, his selection and education, I realize that it may have seemed too idealistic. However, defined goals are strong motivating forces for action. In Dr. James B. Conant's words, "Ideals like the stars can never be reached. But we use them to chart our course."

The Physical Therapist— His Professional and Social Responsibilities

Colonel Harriet S. Lee (U.S.A.)

Abraham Lincoln once said "If we could first know where we are and whither we are tending, we could better judge what to do and how to do it." In view of the changing and accelerated times in which we live, Mr. Lincoln's observation, reminding us of the need for a constant reevaluation of goals and responsibilities, seems particularly timely and apropos. As a group of world citizens with a compelling interest in the health problems of all countries, it has been our good fortune to have Dr. Rusk bring to us the background, philosophy, perspective and challenge concerning our potential contributions as physical therapists to the solution of these problems. He has brought into focus "where we are and whither we are tending"; he has opened the door for our serious reflections on "what to do and how to do it." This means for us a reevaluation of our goals and responsibilities if we are to insure that our profession functions effectively, dynamically, and in tune with the times.

Basic to our very existence and of first importance to the accomplishment of our mission, is the person who makes up our ranks. His recruitment, selection, and education is, therefore, a foremost objective and responsibility. Dr. Worthingham's thoughtful and stimulating discussion of this responsibility has made it crystal clear that the vision, or the lack of vision, which our profession shows in these important areas will be reflected for years to come in the effectiveness of our contribution to the health needs of the world.

Dr. Worthingham having "born and bred" the physical therapist this morning, it has fallen to my lot to "take him from there"—that is—to discuss his professional and social responsibilities. During the past few months I have become acutely and painfully aware that this is a broad subject. Frankly, I am appalled at my temerity in accepting such an assignment for it seems to me now that to speak with any degree of wisdom on such a topic one would need to be a combination of a physical therapist, a social worker, a psychologist, and a vocational counselor with a touch of the philosopher thrown in. Certainly I have no qualifications in these latter fields and, in view of my current removal from our professional operations, I would say that my claim to being a physical therapist is even a little shaky.

I hope, however, that by considering this subject together we may all be provoked to think constructively and seriously of the ever increasing professional and social obligations to which our profession is falling heir, and of the change in concepts which this involves.

A discussion of professional responsibilities implies some common understanding of the meaning of the word "profession" around which

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an atmosphere of ambiguity has come to exist. Cogan says to attempt to define the word "profession" is to invite controversy and adds that research into the literature on definitions of a profession reveals no agreement on any authoritative statement. Perusal of the efforts of several authors to analyze the characteristics of a profession has yielded, however, certain criteria which do serve as guidelines in determining professional status and responsibilities. The most widely quoted of these are the criteria enunciated forty years ago by Dr. Abraham Flexner. It is obvious that the younger professions such as ours meet certain of these criteria to a greater extent than do others. This being true, if "professional status" is to continue to be a valued estate, it behooves those of us recently so categorized to work toward increasing the level at which our profession measures up to established standards. The rights of professional status are accompanied by grave responsibilities to further the highest moral and ethical standards implicit in the term "profession." It is our obligation to all professions as well as to our own to insure that our philosophy of service, our professional standards and performance, our manner, conduct, and appearance conform to the standards of professional people.

In order that we have some guidelines for our discussion it occurred to me as appropriate that we use Dr. Flexner's six criteria of a profession as a frame of reference for our interpretation of the professional and social responsibilities of the physical therapist. Though many of you are familiar with these I should like to bring them into focus by enumerating them now:

(1) Professions involve essentially intellectual operations with large individual responsibility.
(2) Professions derive their raw materials from science and learning.
(3) Professions develop these materials toward a practical and definite end.
(4) Professions possess educationally communicable technics.
(5) Professions tend toward self-organization.
(6) Professions tend to become increasingly altruistic in motivation.

Obviously, time will permit reference only to our broad responsibilities within these six areas. In any event, since most of us are experienced physical therapists, I assume that our interest lies more in a reevaluation of our perspective concerning these responsibilities than in a specific and detailed delineation of them.

First, we will agree, I think, that every physical therapist should strive to cultivate intellectual honesty and intellectual competence—the capacity to acquire knowledge, to see the interrelationship of facts in a given situation, to cope with the new. Dr. Flexner states that "intellectual operations do not necessarily exclude manual work or the use of tools. The physician is not the less a physician because his fingers feel a pulse and his hands sound a patient's chest; the engineer is not the less a member of a profession because he employs instruments and tools. But in neither of these instances does the activity derive its essential character from its instruments; the instrument is an incident; the real character of the activity is the thinking process; a freely resourceful and unimpaired intelligence applied to problems and seeking to understand and master them, that is the characteristic of a profession." If we are to discharge the type of individual and personal responsibility that the professional treatment of patients entails we must base our technics of operation on principles that involve the thinking process rather than on rule of thumb procedures. This is not to suggest that we overstep in any way our ethical responsibilities to the doctors whom we serve but rather that we strive to demonstrate the competence, skill, and judgment inherent in professional performance and required in effective patient treatment.

It goes without saying that associated with the cultivation of intellectual competence is the maintenance of the highest degree of professional integrity. Ours is a profession devoted to the welfare of mankind. Our first consideration is the patient whose best interests can be served only by rigid adherence to the highest ethical concepts.

In consideration of the second criterion, it is our obligation as professional persons to widen constantly our knowledge and improve our skills so that the most enlightened type of professional care may be available to our patients. This involves more than just keeping current with scientific advances related to our profession. It implies that we, as professional workers, strive to make a contribution to the body of knowledge upon which our profession is based; that we take part in its scientific growth. Someone has said that it is disastrous to the growth and maturation of any profession if its practitioners become so engrossed in the application of their current practices that they fail to view them in relation to possible new approaches. Dr. Flexner stressed that professions need to resort to the laboratory and seminar for a constantly fresh supply of

facts and that it is the steady stream of ideas emanating from these sources which keeps professions from degenerating into mere routine; from losing their individual and responsible character. Dr. Hellebrandt has said "To pursue the 'why' to the exclusion of the 'how' would obviously defeat the objectives of a profession concerned primarily with the science and art of alleviating human suffering and disability; but only to seek an answer to the question 'how' is to be a technician." Perhaps I may be forgiven for commenting on the need for proper balance between the "why and how" in a somewhat lighter vein. Should any of us find ourselves giving undue emphasis to the "why" in relation to the "how" we may recall to memory the story of the County Agent who was holding weekly meetings for the farmers down in Arkansas in an attempt to teach them more scientific methods of farming. Farmer Brown had been absent several times so the County Agent paid a call on him and asked him why he had not been coming to the meetings. "Well", drawled Farmer Brown, "I just decided to stay home and let the 'doing' catch up with the 'knowing'."

Speculation concerning our profession in relation to Dr. Flexner's third criterion—that is, the working up of material derived from science and learning toward a practical and definite end has many ramifications. Physical therapy is, by its very nature, practical in the usual sense of that word and may certainly be said to have a definite end. However, this is an area, which, I think, demands our further scrutiny. Is the extent of our practicality and purposeful, definite goals as far reaching as it should be in terms of the patient's total needs? Are we alert to our need for greater competence in assuming social responsibility? The patient is the most powerful force in his own recovery and if we are to help him in his rehabilitation we must understand him and his needs in relation to his background, his family, and his community. In other words, if we are to think in terms of helping a human being rather than of just treating his physical disability we must identify and familiarize ourselves with the mores, attitudes, and life of the community and with its resources and activities. I would venture to say that many of us have found and will continue to find ourselves in situations where we, as physical therapists, are the patient's main resource in his efforts to readjust to a useful life. Our understanding, counsel, and guidance must be based not on emotion and intuition but on a background of basic knowledge in the fields of psychology, sociology, and human relations. It is, I believe, one of our prime responsibilities to seek further enlightenment in these areas.

In situations where many disciplines concerned with the total rehabilitation of the patient are functioning together, it is no less important that we have a broad background and a concept of the points of view of other disciplines. Gallagher has said "No person is competent to perform in his profession unless he is fully aware of the meaning of his daily duties in relation to the larger social whole." Whitehouse writes, "Since artificial barriers are set up by law, custom or education qualifications to divide knowledge and procedures into separate professional fields, each subdivision must recognize and accept the interwoven fabric of its fellow professions. We must all understand that there are no discrete categories of scientific endeavor. Professions are only cross sections of the over-all continuum of human thought. Fundamentally, no treatment is medical, social, psychological or vocational—all treatment is total." It is quite obvious that the modern day team approach has imposed upon our profession, and rightly so, a specific need for education in the process of intelligent participation and cooperative effort.

Dr. Flexner has stated that professions must possess an educationally communicable technic. The basic premise of this fourth criterion has been fully discussed by Dr. Worthingham, but it is perhaps well to mention certain associated responsibilities with which we, as practicing physical therapists, are concerned. It is important that we participate in and contribute in any way we can to educational programs whether they be formal undergraduate or postgraduate courses, inservice educational programs or seminars. It is likewise important that we pursue our daily tasks with "eyes that see," interpreting and recording our observations and experience in a truly scientific manner. Related to this area is our professional responsibility for the communication of ideas concerning which Dr. Frances Hellebrandt wrote in such a thought provoking manner in the May 1951 *Physical Therapy Review*. If we are to add to human knowledge within the areas of our specialty, then the obligation also exists that we communicate that knowledge and that we do so in a professionally acceptable manner.

The fifth criterion by which Dr. Flexner characterizes professions, is that they tend toward self organization. A professional organization is the voice of the profession and provides the framework within which the profession is fostered and developed in terms of a common,

social interest. I am sure we will all agree that one of the major responsibilities of a physical therapist is active, meaningful support of his professional organization and participation in its activities at both the national and local level. Participation implies for each one of us acceptance of the responsibilities as well as of the privileges of membership, it includes understanding of the aims and purposes of the organization and wholehearted cooperation in their accomplishment; it means the consistent contribution of thoughtful and constructive ideas and opinions as well as the time, energy, and effort which these activities imply. The effectiveness of a professional organization is in direct proportion to the effectiveness of the contributions of the individuals who comprise its membership. You may have heard the story of the Pennsylvania Dutch minister who had no regular charge but who occupied vacant pulpits around the countryside as opportunity offered. One Sunday, accompanied by his son he boarded a trolley car and journeyed several miles to a small town where he was scheduled to conduct the morning service. As he entered the vestibule of the church he noticed a box bearing the legend "For the Poor" and although he, himself, was not blessed with a superfluity of this world's goods, he produced a quarter from his pocket and dropped it in the receptacle. At the conclusion of the service he was escorted from the pulpit by one of the vestrymen who thanked him for his sermon and said that it was the custom of the church to give the speakers the contents of the "poor box." When he opened it, out dropped nothing whatsoever save the poor minister's own quarter. He pocketed it with a wry smile and as he and his little son walked back to the trolley station, the boy looked up into his father's face and said: "You would have gotten more out if you had put more in, wouldn't you, Pop?"

As members of our professional organization each of us has the obligation of interpreting our profession to the public in a manner which will strengthen its status, increase understanding of its purposes and goals, its challenges and its needs. This includes the responsibility that rests with each of us as individuals to interest young people in physical therapy as a career. The need for more physical therapists is so acute, so drastic, that each person must view his responsibility for recruitment to the profession with high priority if we, as a profession, are to be able to accept the enormous challenge of contributing to the rehabilitation needs of the world.

If we are to be effective in these areas of interpretation and recruitment we must critically assess the caliber of our personal public relations. We, as physical therapists, have many "publics." To our patients, to our colleagues in the institutions where we work and to our associates in the communities where we live, we symbolize "physical therapy." Do we at all times represent our profession as it should be represented by our attitudes, our professional performance, our manner, our behavior, our speech and our appearance? Do we continually seek insight and understanding in the field of human relations? I would venture to say that an enlightened and mature approach to our interpersonal relationships is not only one of our prime responsibilities but it is also fundamental to any true achievement of our individual and collective goals.

The sixth and last criterion of a profession is the tendency of the group to become increasingly altruistic in motivation. A genuine profession focuses upon higher social values than dedication to the selfish interests of the professional group. It seems appropriate, therefore, to climax our discussion this morning with consideration of our responsibilities as citizens to our communities, to our countries, and to the world at large. As citizens, the conscientious pursuit of our professional goals is essential but we must pursue them in the light of our membership in the society in which we live if we are to meet the obligations imposed by acceptance of the many blessings which that society has bestowed upon us. Though the scope of our citizenship activities need not be limited, we, as physical therapists, are particularly equipped by virtue of our professional education and experience to contribute, as citizens, to the community enterprises concerned with health problems. Participation in such activities in turn widens our horizons and affords us greater insight into the needs of the patients whom we treat.

Dr. Severinghaus notes that it was agreed at the Inter-Professions Conference on Education for Professional Responsibility at Buck Hill Falls in 1948 that "so far as our citizens control their government they must do so in spite of the demands of their work. They must continue to learn throughout their lives from study and experience the changing character of the problems which confront society and the changing means available for solving them. Only by thus giving of their highest powers to the public good can they maintain effective popular control that alone separates democratic bureaucracy from dictatorship. Finally, they must do all this in

spite of the engrossing demands of their professional work." Dr. Severinghaus goes on to quote Robert E. Doherty, late president of the Carnegie Institute of Technology, who asked "to what ends will professional men direct their energies and abilities? Under the American system, professional men largely set the fundamental pattern of national life. The character of their pattern depends not alone upon their technical ability nor yet upon whatever ability they may have in dealing with human beings and social situations, it also depends—depends critically—upon their attitudes, the way they look at things."

This philosophy of citizenship responsibility implies for us, as professional people, a critical examination of our attitudes and sense of values. We are quite prone to be preoccupied with our own affairs, our selfish interests. We, like everyone else, feel overwhelmed by the many demands made on our time. If we think honestly and critically, however, of the satisfactions we gain from the various ways we spend our time, thought, and energy, we are at once aware that the times we rise above our self-preoccupation to render some altruistic service represent, in retrospect, life at its best.

This type of introspection shifts the emphasis from the *duty* of altruistic service to the *privilege* of such service. It was Robert Louis Stevenson who said "There is an idea abroad among moral people that they should make their neighbors good. One person I have to make good: myself. But my duty to my neighbor is much more nearly expressed by saying that I must make him happy, —if I may."

Our Congress is witness to the tremendous worth of an interchange of friendship, ideas and philosophy. It is also witness to our interest in assuming what a good friend and advocate of our profession, Mr. Eugene Taylor, has chosen to call our "international citizenship responsibilities." As we widen our horizons and accept the challenge of our international citizenship responsibilities, we will gain in professional as well as personal stature; but what is more important we will have the *privilege* of contributing to the health and welfare of all countries.

Perhaps you have heard the story of Christopher Wren, one of the world's great architects, who walked one day unrecognized among the men who were at work upon the building of St. Paul's Cathedral in London which he had designed. "What are you doing?" he inquired of one of the workmen and the man replied, "I am cutting a piece of stone." As he went on he put the same question to another man; the man replied "I am earning five shillings a day." And to a third man he addressed the same inquiry and the man answered, "I am helping Sir Christopher Wren build a beautiful cathedral." Let us, too, have this kind of vision—to see beyond the routine of our daily tasks to the contribution we can make to the larger whole. As the old North Country saying goes: "Let us keep our fingers on the near things and our eyes on the far things."

BIBLIOGRAPHY

1. Cogan, Morris: Problem of defining a profession. Ann. Am. Acad. Polit. & Social Sc. (Jan.) 1955
2. ———: Toward defining a profession, Harvard Educational Review, Winter 1953
3. Flexner, Abraham: Is social work a profession? School and Society (June 26) 1915
4. Gallagher, Buell: False dichotomy of professional vs. general education, Children (March-April) 1954
5. Hellebrandt, F. A.: The communication of ideas as a professional responsibility of the physical therapist, Phys. Therapy Rev. (May) 1951
6. Severinghaus, Aura Edward, Harry Z. Carman, William E. Carbury, Jr.: Preparation for Medical Education in the Liberal Arts College, New York, McGraw-Hill, 1953
7. Taylor, Eugene J.: The scope of responsibilities of the physical therapist, Phys. Therapy Rev. (Jan.) 1956
8. Whitehouse, Frederick A.: An approach to a higher professional level, Exceptional Children (Dec.) 1951

The Lower Extremity Toddler Amputee:

Training Procedures

Jewell Radford, B.S., and John Steensma, B.A.

The attempt to stand in an upright position is a natural phenomenon in the human endowed with a normal central nervous system. To achieve the distinctively human upright position, the child progresses through stages of creeping, standing with support, walking with support and around objects, and then finally to independent walking. The first independent walking is characterized by a wide stance, wobbly progression, and an abducted position of the arms.

No two children follow identical patterns. Some will master independent standing balance and walk sooner than others of the same chronological age. The toddler amputee is no exception, for he, too, will attempt to assume an upright position at some time during his development. These attempts should be recognized, and at this time the toddler amputee should be fitted with a comfortable prosthesis; the toddler amputee will attain some form of ambulation without aid according to his own stage of kinesthetic development. Training accelerates this development of a gait pattern and motivates the child to follow a normal pattern.

As prosthetic tolerance is being accomplished, various procedures and apparatus are used to aid in the development of confidence, balance, and alternating progression.

From the time the toddler amputee receives his prosthetic device until the time he walks unassisted, he will have passed through five stages of training.

1. Assisted standing balance
2. Independent standing balance
3. Supportive ambulation (stationary parallel bars)
4. Supportive ambulation (mobile suspension harness)
5. Independent ambulation

These stages often overlap and are frequently combined in *one* training session. The unilateral below-knee amputee may omit training practice in the first and third stages, as his problem is not as difficult to master as that of the bilateral above-knee amputee.

The time and effort consumed in getting the unilateral below-knee toddler to walk in his prosthesis will be less than that expended with the bilateral above-knee amputee.

The prosthetic instructor or physical therapist who has the responsibility of a child's ambulation must have patience, imagination, and a sense

Figure 1-A. This child, a bilateral above-knee amputee, obtained torso balance and hip control with the aid of the leg stabilizer.

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Photographs were supplied through the courtesy and cooperation of the Area Child Amputee Program of the Michigan Crippled Children Commission.

Figure 1-B. Note level of stabilizers are above the knee.

Figure 2-A. A 30 month old child with quadruple congenital limb abnormality. Balancing in early stage of training aided by toddler harness with overhead straps.

of humor. The training session must of necessity be in accord with the attention span and the skin tolerance of the child. The younger the amputee the shorter and more frequent the periods of practice in developing balance and alternating progression. Careful observation should be made of the progressive attempts of the amputee.

The therapist should try numerous methods or technics, using his good judgment and employing the devices which seem to be best for the individual amputee. There should be no misgivings or apprehension in encouraging and starting the toddler on his way.

Stages of Training

Apparatus

1. *Assisted standing balance*

   a) Stand-up table—Used early in trials for the bilateral below-knee and the above-knee amputee. This table is advantageous in early sessions for developing prosthetic tolerance, but is purely passive and does not encourage torso control, nor does the

Figure 2-B. Same child two weeks later. Good balance and confidence.

child usually exert his hip flexors and extensors to full advantage. The table should be used sparingly for standing balance.

b) Leg stabilizer—This device firmly fixed to the floor can be adjusted from below knee level to hip level. With the feet firmly fixed, the stabilizing level can be placed at the midshin level allowing the below-knee amputee to get the "feel" of both knee and hip. The above-knee amputee can initially be stabilized at thigh level in order to use his hip extensors. (Figs. 1-A and 1-B)

c) Overhead harness—The toddler harness with straps carried over the shoulders allows the therapist to stabilize the child in an upright position. On first attempts the child usually flexes at the hips. Knowing that he will not fall, he is encouraged to use his gluteii and sacrospinalis to assume an upright position. (Figs. 2-A and 2-B)

d) Manual support—The therapist may give stability by holding the child's arm or support the child at hip level. (Fig. 3)

Figure 3. Five year old with anomalous (flipper) lower extremities. Bilateral dysplastic hips. Prosthetic classification is above knee. Aided in standing balance by manual support.

Figure 4. A 19 month old unilateral below-knee amputee utilizing bar for supportive ambulatior on uneven ground.

2. *Independent standing balance*
   a) Overhead harness—The harness may, after a few sessions, be slacked off releasing the support. With a short take-up the child can regain his balance without falling. (see Figs. 2-A and 2-B)
   b) Parallel bars or play pen for the very young. This permits repetitive trials of voluntary release. (Fig. 4)
   c) Immobile chair—The child can grasp the back of a chair and repeatedly be encouraged to "let go."

3. *Supportive ambulation* (stationary)
   a) Parallel bars—This apparatus is of great importance as it produces confidence and allows for turning. (Fig. 5)
   b) Prearranged furniture — Carefully observed by personnel the child is allowed considerable freedom of activity for increasing periods of time daily.

4. *Supportive ambulation* (mobile)
   a) Overhead harness—preferred apparatus—Child's arms are free to assist in maintaining balance. Support from above encourages erect body position.
   b) Mobile walker (Fig. 6)
   c) Baby buggy
   NOTE—*b* and *c* not to be encouraged. Child tends to become dependent upon these mobile units of great support and will not walk independently as quickly as he otherwise would. Pushing apparatus also tends to decrease the child's ability to maintain an erect, independent standing position.
   d) Manual support (Fig. 7)

5. *Independent ambulation*
   a) Flat surface (floors—with and without rugs)
   b) Low pitch ramps (up and down)
   c) Low curbs and stairs
   d) Uneven terrain—grass, sand, and gravel (may be home work)

TRAINING PROCEDURES

A. The unilateral below-knee amputee

Age, length of stump, and attitude of the child will determine whether or not the knee will be locked initially.

1. Parallel bars may be tried initially to give supportive ambulation. If the child is fearful begin with assisted standing balance with an overhead harness.
2. Supportive ambulation with overhead harness (4-a)—This will permit the child to walk independently and is used as a precautionary measure to prevent falling. The mobile walker (4-b) had been used extensively in the past but is frequently unnecessary and tends to encourage dependency; therefore, use sparingly.
3. Independent ambulation — without assistive measures (5-a-b-d) follows quickly. (Fig. 8)
4. Stair and low curb climbing (5-c) will usually be acceptable in the quadruped manner, (Fig. 9)

B. Bilateral below-knee amputee

The knee joints may or may not need locking depending upon results of the initial training sessions.

1. The stand-up table may be indicated for a few sessions to permit the child to get the "feel" of the socket pressure.

Figure 5. Same child as in figure 1, after initial standing trials, attempts turning about in parallel bars.

2. The leg stabilizer (1-b) affords assistive standing balance. Grasping the shin section will allow the child to exercise balance at the hips. When he has obtained good balance in the stabilizer, it should be discontinued.
3. The overhead harness and parallel bars (2-a, 3-a) are excellent aids in this type of amputee. The age of the child will determine the mechanism used. The child generally gains his balance, develops confidence, and progresses to ambulation in either of these apparatus. When using the overhead harness the therapist will vary the overhead tension to keep the child upright when walking (4-a).
4. Progress will be made rapidly to independent ambulation (5-a-b-d) with stair climbing. The children who require locked knees should not be considered for discharge until they have developed independent ambulation with unlocked knees (Figs. 10-A and 10-B). Some

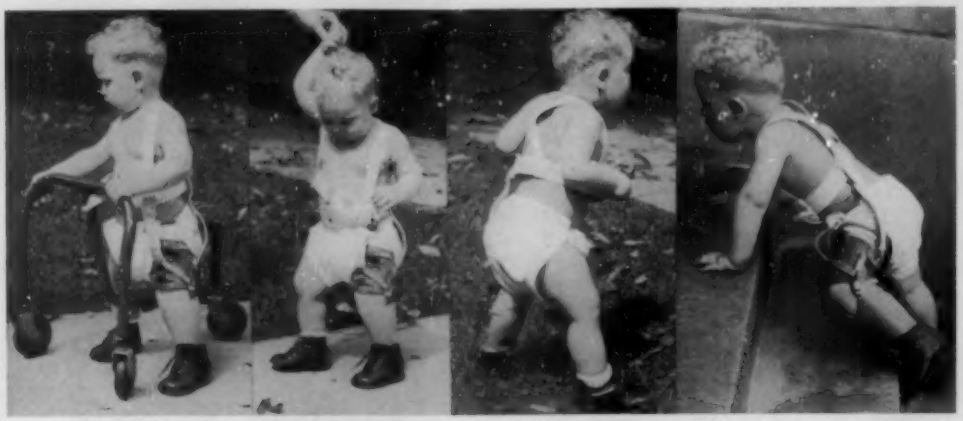

Figure 6. Mobile walker for supportive ambulation.

Figure 7. Walking with only minimal support from therapist. Knee joint is free.

Figure 8. Four weeks after initial fitting—taking first independent steps.

Figure 9. Stair climbing follows normal pattern of 19 month old child.

bilateral below-knee amputees may be end bearing; as a rule these children stand on their stumps and ambulate before the prostheses are applied. The congenital case will usually have run about on his stumps at a normal period of kinesthetic development. The bulbous stump ends afford firm fitting and a better "feel" of the prostheses beneath him. He may need only to be gradually acquainted with the appliances and may walk with a minimum of training.

C. Unilateral above-knee amputee

The age of the child will determine the need for a pylon or conventional type prosthesis. The child with a very short above-knee stump has an initial tendency to pull his stump out of the socket. This should cause little concern, because once the child realizes the purpose of the device he will maintain the stump in the socket.

Anomalous extremities classified prosthetically as above-knee type may have no hip stability. Their initial prescription will call for a modified ischial bearing, long caliper type brace (similar to Legg-Perthes) or a pylon.

1. To develop balance the overhead harness or parallel bars (1-c or 2-b) may be used early for this type of patient. Manual supports may also be tried during training sessions in conjunction with parallel bars and the immobile chair (1-c and 2-c).

Figure 10-A. Note position of arms during independent ambulation. Both knee joints are unlocked.

Figure 10-B. Bilateral congenital below-knee amputee negotiates stairs with unusual speed in quadruped manner.

2. To develop ambulation the parallel bars may alternate with the use of the overhead harness (4-a).
3. The mobile walker (4-b) may be of aid in the congenital patient who is wearing a supportive brace and does not have a normal hip flexion pattern. He will use a circumduction type gait.
4. When initial ambulation is mastered and the patient has a locked knee joint, the knee joint is gradually unlocked. This permits shin swing.

D. Bilateral above-knee amputee

Joints are seldom incorporated in the prosthesis of the bilateral above-knee amputee before he is five years of age.

1. The stand-up table may be utilized in early sessions to develop pressure tolerance of the skin within the sockets.
2. The leg stabilizer fixed at knee level allows torso balance exercising. The child during this stage of his training may be placed against the wall facing out to gain torso flexion and recovery with the prosthesis.
3. The overhead harness (1-c) may be used early in an endeavor to combine balance and ambulation.
4. The parallel bars and the immobile chair may be used to develop balance. The child momentarily frees himself from support, but the apparatus is readily available for quick grasping to regain a lost balance.

Figure 11. Bilateral above-knee toddler amputee without knee joints incorporated within prosthesis masters stair climbing utilizing handrail.

5. Parallel bars offer firm support, independent of the therapist, in the use of the arms. The overhead harness (4-a) frees the amputee's arms so that the arms are used in maintaining independent walking balance.
6. The weight bearing buggy is a stable support, and the nature of the apparatus may stimulate the child to utilize this in "play tasks."
7. Independent ambulation (5-a-b-d) will be mastered in variable lengths of time. This should be mastered before discharge. The child may or may not begin stair climbing (5-c) during inpatient training. (Fig. 11)

This group of amputees should not be limited to supervised periods of instruction by the physical therapist, since they are in the developmental stages of ambulation. They should be encouraged on the wards in the company with other children and under the supervision of trained ward personnel. The use of prearranged furniture, and even play pens, makes their environment conducive to independence. The stimulation of seeing other children active on the wards is invaluable.

Suggestions from the Field

Aids for the Quadriplegic

D. A. W. Blake * and A. F. Blake

The two-way telephone (1 and 2) between the patient's bedside at the hospital and his home was rented from the Bell Telephone Company. The phone is controlled at home by a switch, which in normal position enables the patient to be heard at all times. When the switch is down the speaker at home may be heard by the patient. Thus, it is not necessary for the patient to operate the telephone.

The ceiling projector (3) enables the patient to read books printed on microfilm and projected on the ceiling or an overhead screen (6). Projectors may be borrowed from some public libraries free of charge for an indefinite period. A selection of several hundred books are available on microfilm and may be obtained on loan free of charge. Normally, the projector is operated by two push button switches, one to turn the film forward or backward and one to turn it on and off. In the case of the totally paralyzed patient, the buttons may be operated by a lever (4) that is controlled by the patient's mouth. Small wire depressions attached to the moving lever operate first one, then the other of the two buttons. When the lever is vertical the film is stationary.

The overhead bars (5) were manufactured at a factory after the patient's design. The bars, made of cast iron, are adjustable in every direction and may be disassembled and easily carried. From the overhead bars are hung two connected skirt racks (7). They contain clamps which are used to fasten magazines. Instead of the rack a lucite plate may be hung in a desired position on the upper side of which the reading material can be placed and pages more easily turned. Either holder should be easy to remove whenever necessary.

A bedside buzzer (8), so important to a patient totally paralyzed, is attached to a hingelike device, which is controlled by the patient's mouth. The upright part of the hinge contains a projecting depressor which, when pulled forward, operates the button.

It is often recommended that paralytic patients drink large quantities of water. To make this

* D. A. W. Blake is a poliomyelitis patient totally paralyzed below the neck. He and his father (A. F.) present devices and a home constructed electrical unit which have proved beneficial in obtaining increasing independence and thus extending the number of ways the patient can occupy his time.

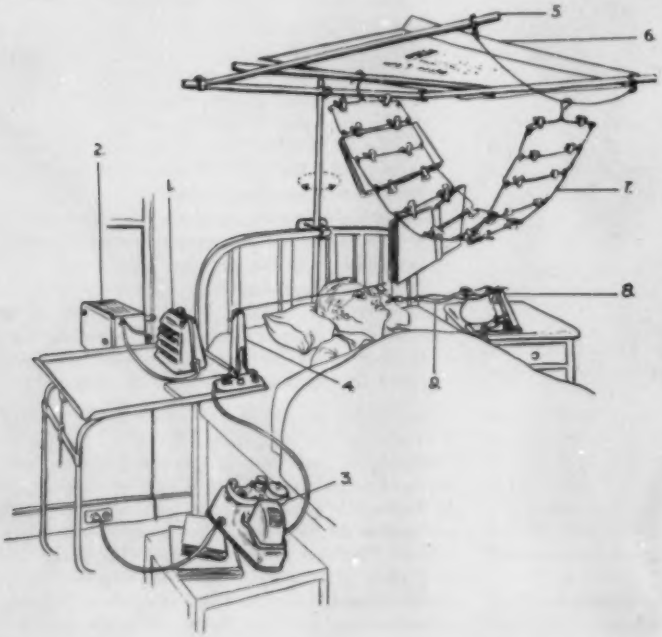

Figure 1

1. Two-way telephone between hospital and home
2. Transformer for telephone
3. Reading projector
4. Mouth control switch for projector
5. Overhead bars
6. Cardboard screen for reading projector
7. Rack for newspapers, magazines, etc.
8. Control for bedside buzzer
9. Drinking tube

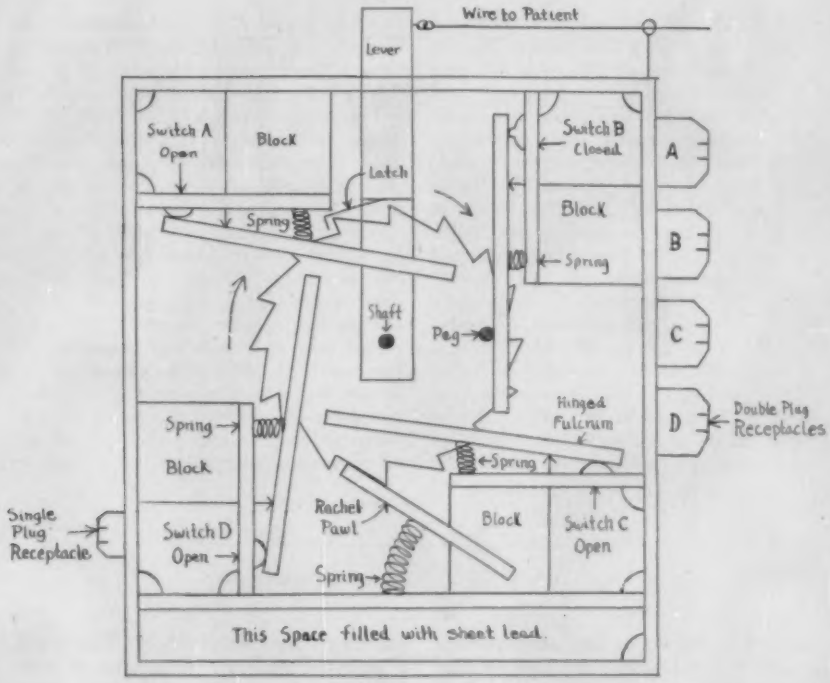

Figure II. Diagram of mechanism of multiple switch

easier, a plastic intravenous tube (9) attached to the control for the bedside buzzer permits the patient to suck water from a large container on the table.

An alternating pressure pad mentioned (10) but not shown in the diagram, may be bought or possibly rented from Air Mass Inc., Cleveland, Ohio. This pad, which covers the top of the mattress, is made of plastic and consists of a series of longitudinal sections. These sections are alternately inflated and deflated by a small air compressor that rests on the floor. The patient's back is thus continually massaged by the alternating increase and decrease of pressure.

One of the authors, A. F. Blake, has designed and constructed a multiple switch which enables the patient to turn on and off eight different electrical devices.

This multiple electric switch is intended for patients, unable to move their arms or legs, but who have normal or nearly normal movement of their heads.

The mechanism is contained in a cabinet made of plywood and is operated by an oscillating lever protruding through the top of the cabinet to which may be attached a moderately stiff wire extending to a position near the patient's mouth. The end of the wire may be looped, padded and wrapped in adhesive in a suitable manner. A horizontal movement of 3 to 4 inches operates the mechanism and a certain number of movements, memorized by the patient, will turn on or off the various electric appliances plugged into the apparatus. On one side is a single plug receptacle for connection to the wall outlet; and on the other side four double-plug receptacles for the appliances. Devices plugged into separate double-plug receptacles switch on and off independently of each other but two appliances plugged into the same double receptacle switch on and off simultaneously.

Among the devices useful to a patient are lights, a radio, television, electric fan, electric blanket, record player, and the microfilm projector. Obviously the radio, television set, and record player must be plugged into separate

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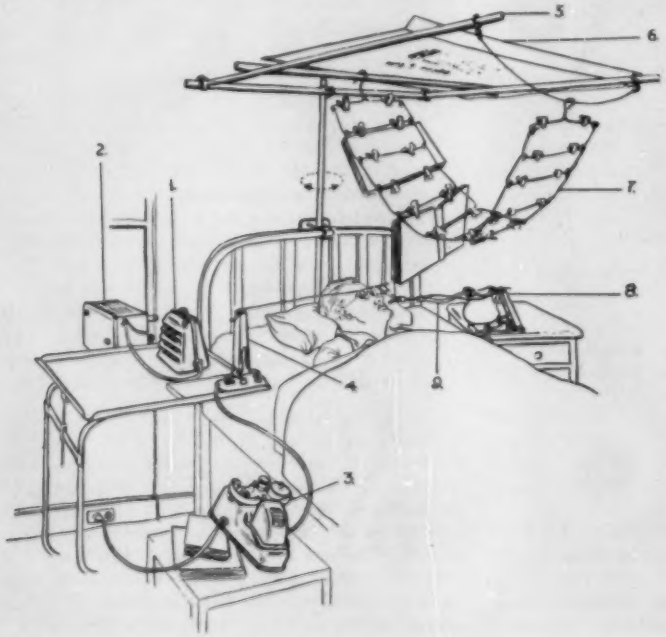

Figure I

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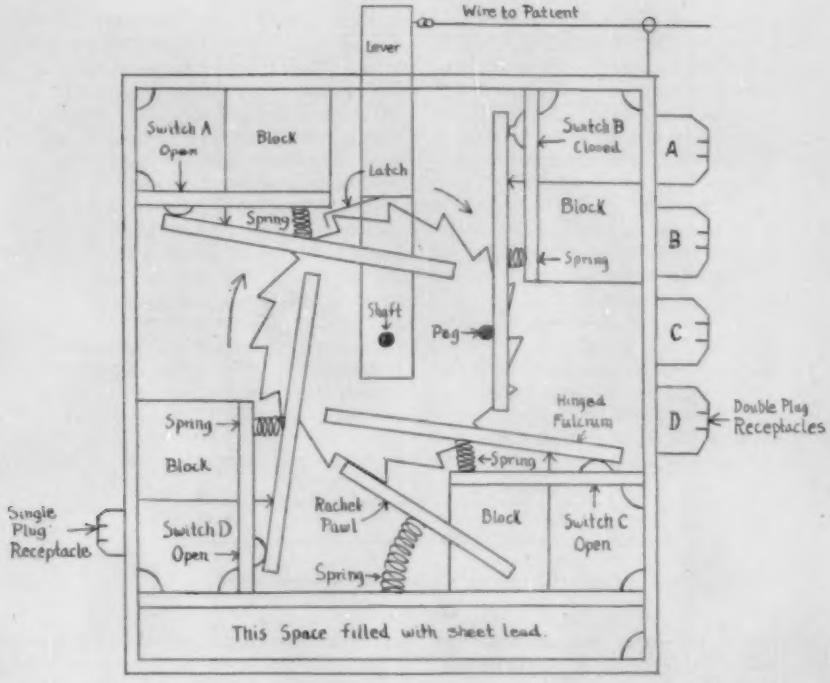

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Among the devices useful to a patient are lights, a radio, television, electric fan, electric blanket, record player, and the microfilm projector. Obviously the radio, television set, and record player must be plugged into separate

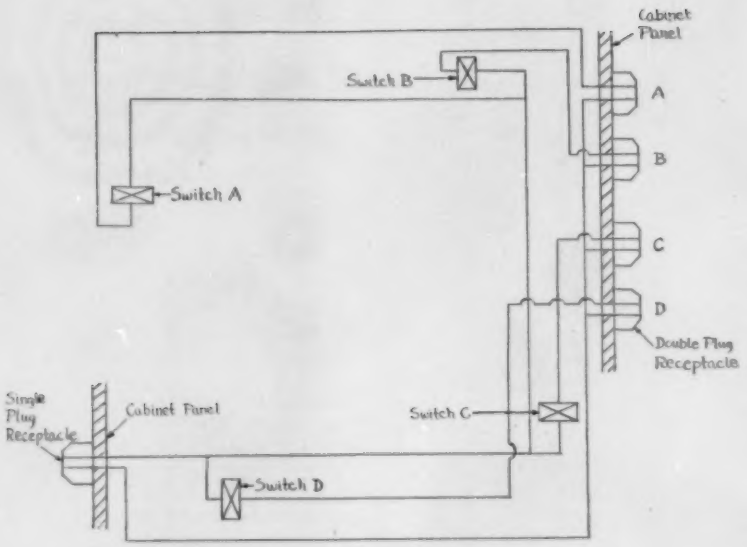

Figure III. Wiring diagram for multiple switch

double receptacles, but lights and other devices can be plugged in beside them. It would be possible to design a device with more than four switches but it would be somewhat larger and would require more movements to accomplish certain results. The apparatus can be constructed by any mechanically minded person who also has some knowledge of simple electrical wiring. It is recommended that the cabinet be provided with a false bottom containing lead sheets to increase stability and avoid slippage on the table.

Mechanical construction of multiple switch

The cabinet is made of ¼" plywood having interior dimensions of about 9"x9"x3". A ratchet wheel also of plywood, about 6" in diameter, having 16 notches is mounted by a 3/16" round head bolt, 4" long, threaded for its entire length centrally in the cabinet with metal bearings on front and rear panels. The ratchet wheel is rotated, one notch at a time by an oscillating lever. The lever has two arms, one on either side of the ratchet wheel. The lower ends are mounted on the wheel shaft and have eyelets to prevent wear. The other end projects through slots in the top panel of the cabinet and are screwed onto a block of wood to form a single assembly. The portion of block which is directly over the ratchet extends through the slot in the top panel until it just clears the ratchet wheel. This is fitted with a latch in the form of a loop of wire which catches on the notches and moves the wheel in one direction only. The latch operates by gravity and no spring is required. The ratchet wheel is also fitted with a pawl riding on the notches to prevent it from being rotated backward as a result of any friction from the lever or back push from the springs in the electric switches. As the pawl can be conveniently located only at the bottom of the cabinet it must have a compression spring to keep it in contact with the ratchet wheel. Although the rear arm of the oscillating lever should be mounted behind the ratchet wheel, the front arm must be at the front of the cabinet to leave room for the switch levers.

Nuts with lock washers between them are used to properly space things on the shaft and to hold it in proper position in the cabinet. The ratchet wheel has a peg 5" from the center which projects toward the front about ¾". As the wheel turns, this peg comes into contact with four levers and moves them in turn to close four electric switches. The switches are of the push button type but unlike ordinary push button switches are normally closed. The switches are mounted on strips of plywood with other strips hinged above them. Compression springs on the other side of the fulcrum press the lever down on the switch button; this keeps the switch open. The entire

switch assemblies are screwed to blocks of wood which in turn are screwed to the top, bottom, and side panels of the cabinet in such a position that the peg on the ratchet wheel as it rotates will strike and depress them just enough to close the switches. Since there are 16 notches in the ratchet wheel and only four switches, obviously four movements are necessary for the closing and reopening of a single switch. Whether the switch is opened on one movement and closed on three, or opened on two and closed on two, or opened on three and closed on one will depend on the exact amount of movement of the switch push button required to make a change and on the length of the levers but this does not matter particularly as long as every switch is closed and reopened as the peg on the ratchet wheel passes. Figure II-A illustrates the wiring diagram for connecting the switches to the single-plug outlet receptacle and to the 4 double-plug receptacles for electric appliances. The front panel of the cabinet should have a rigid center piece to support the shaft. There are hinged doors on the front panel above and below so that the mechanism can be examined if adjustment is necessary. A vertical view of the apparatus (Fig. II-B) shows the construction. Since the shaft protrudes about ½" through the front panel it is possible to mount a pointer in it, outside the cabinet, which will indicate on a small circle drawn on the panel which switches are closed at any particular time and when all switches are open. The cabinet is conveniently and rigidly put together by screwing the edges with small brass screws to lengths of ½" quarter round. The rather large number of electric wires can be kept in position and out of the way of the ratchet wheel, oscillating lever, and switch assemblies by passing them through screw eyes fastened into the quarter round at suitable locations.

My doctor has ordered me to put my head in traction for ten minutes twice a day. (Nobody can figure out what to do with my head, so now they are going to give it a good pull, like an exasperated mechanic who hauls off and gives his problem a smart jolt with the hammer.) I have rigged a delightful traction center in the barn, using a canvas halter, a length of clothesline, two galvanized pulleys, a twelve-pound boat anchor, a milking stool, and a barn swallow. I set everything up so I could work the swallow into the deal, because I knew he would enjoy it, and he does. While his bride sits on the eggs and I sit on the milking stool, he sits on a harness peg a few feet away, giggling at me throughout the ten-minute period and giving his mate a play-by-play account of Man's fantastic battle with himself, which in my case must look like suicide by hanging.

—E. B. WHITE
The New Yorker
June 30, 1956

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Editorial

This Journal: Its Scope and Perspective

The serious need for improving scientific periodicals has been recognized recently in many areas. In 1940 the American Medical Writers Association was formed; it was reactivated in 1951. This organization is stimulating universities to offer courses in medical journalism and writing. It also has initiated an editorial service available to authors. The American Association for the Advancement of Science is publishing an increasing number of articles on how to write a scientific paper. This group held its first Conference on Scientific Editorial Problems in 1952. Interest is directed not only to improvement of the original manuscripts but to the journal in toto. With so much attention being directed to publishing better periodicals, it behooves physical therapists to consider critically the quality of the *Physical Therapy Review*.

In the broadest sense, the purpose of publishing an organ of a society is to inform the members and executive officers of the problems each is confronting, as well as to provide an outlet for studies of recent advances in the field. This is done in the *Review* through original articles, reports on association activities, and membership and student news. The abstracts, index to current literature, and book reviews are means of acquainting the reader with recent publications in the fields of medicine, psychology, sociology and education. Of equal importance are the advertising pages which bring to physical therapists information on equipment, devices, and books pertinent to treatment programs. With the conception of the World Confederation for Physical Therapists a section on international news was introduced. The basic structure of the *Review* is well planned and in keeping with the fundamental principles of journalism, i.e., to inform, interpret, guide, educate, and act as a medium for public relations.

The editorial board has been studying the existing policies and procedures. One of the most serious problems confronting the board is the fluctuating number of articles submitted for publication. Periodically the *Review* office is flooded with papers; a short time later none are forthcoming. To combat this feast or famine long range scheduling is paramount. This sometimes causes a delay of several months after the paper is received before it is published. Original articles presented for publication are being edited by

Editorial

physical therapists who are specialists in the subject matter discussed in the paper. This divides the responsibility of editing and increases the amount of assistance available to those authors wishing help. Where necessary, the editorial style of the preparation of manuscripts is being modified to meet the current trends. A revised "Instructions to Authors" will appear in every issue.

Each section of the journal is being reviewed and changes will be made where indicated. New features and columns are being considered and may be added. Membership opinions on how to improve the journal are being requested with the expectation that a "Letters to the Editor" column will eventually be included. Other ideas and plans which are not new may be reintroduced.

It is the hope of the editorial board that more commercial artists will find ways to portray devices and instruments in as effective a manner as has been done with drug advertisements. Some of the artists have accomplished this already and their ads have done much to improve the appearance of the journal.

The core of progress of the physical therapy profession is expressed in the *Physical Therapy Review*. Its pages reflect the growth and development of the individual members and thus the profession. The degree of literary professionalism depends on the combined efforts of the members, the administrative officials and the editorial board. One phase of moving forward depends on the editorial staff's ability to integrate into the periodical current advances made in the field of journalism. This small group working on fringe time can never accomplish this enormous task. The primary responsibility for more effective and accurately written communications rests with the members.

May your New Year's resolution include, "Improve my written communications in 1957" and ask another physical therapist to help you.

Marriages

Marit Aabakken, of Washington, D. C., now Mrs. Marit A. Grachow, Washington, D. C.
Beatrice A. Campbell, of Rumford, R. I., to Roger A. Elliott, Franklin, N. H.
Shirley Campbell, of Pittsburgh, Pa., to T. O. Nasby, Champaign, Ill.
Ann Donahoe, of Reading, Pa., now Mrs. Ann D. McNamara, Philadelphia, Pa.
Joanne Duffy, of Rutland, Vt., to William S. Grace, Hartford, Conn.
Twila Gulson, of St. Paul, Minn., to Arvin Halvorson, Minneapolis, Minn.
Leona Hoefer, of New Haven, Conn., to Bruce Allen, East Haven, Conn.
Joyce M. Jackels, of Seattle, Wash., to Richard C. Rosenkranz, Seattle.
Eileen O'Neill, of Tacoma, Wash., now Mrs. Eileen O. Lopez, Tacoma.
Carole Soe, of Lead, S. Dak., to Whitlock Jones, Golden, Colo.
Jean Taylor, of Newton, Conn., now Mrs. Jean T. Buermeyer, Alexandria, Va.
Barbara Wilson, of East Lansing, Mich., to Scott L. Hidden, East Lansing.
Janet Wiranis, of Dorchester, Mass., to Edward Grant Stockwell, Dorchester.

Memorial Fund

The Elizabeth Q. Ammerman Memorial Fund, mentioned in the July issue has been established at Russell Sage College for yearly awards to the most deserving student of physical therapy.

Gifts to this fund may be sent to:

The Elizabeth Q. Ammerman Memorial Fund
Russell Sage College, Troy, New York

Association Activities

Lieutenant-Commander Lucile H. Vosgerau, NC, USN, passed away October 14, 1956. Miss Vosgerau, a graduate of Iowa State Teachers College, received her nursing education at the University of Iowa and completed her physical therapy education at the Medical College of Virginia in 1947. Miss Vosgerau was most recently stationed at Bethesda, Maryland, where she served as Instructor, Physical Medicine Technicians School, Navy Medical School. She first became a member of the Association in 1947 and was a member of District of Columbia Chapter.

Association Member Olympic Trainer

Celeste Hayden of Raleigh, North Carolina, was the first professional physical therapist to be employed as a trainer for the U.S. Women's Olympic Team. Before traveling to Melbourne and the XVI Olympiad, Miss Hayden spent several weeks at the University of Southern California where the university's track and field athletic facilities were used in the conditioning of the team's women athletes.

Section on Education

Application forms for membership in the Section will soon be sent to all people whose names appear upon the mailing list of what was formerly known as the School Section. If any member of the APTA does not receive one of these forms and wishes to join the Section, he should write to the Secretary, Carmella Gonnella, Division of Physical Therapy, School of Medicine, University of Texas, Galveston, Texas.

According to the new Rules of Government, dues are payable "between April 1st and the annual meeting of the Section." However, in order to save time, money, and duplication of work, i.e., a second mailing, we would appreciate it greatly if applicants would remit their dues at the time they file their application. The new Rules of Government state that "any voting member of the American Physical Therapy Association who is (1) an educational administrator, (2) an instructor, (3) clinical teacher, or (4) one who is associated with an educational program, is eligible for Section membership. Written application is required." Annual dues are $2.00.

The annual meeting of the Section on Education will be held on Sunday, June 22, 1957, at the Hotel Statler, Detroit, Michigan. As in past years this meeting will be held in connection with the Annual Conference of the American Physical Therapy Association.

"Finding the Common Ground" will be the theme of this meeting of the Section. The Program Committee hopes to utilize lecture-demonstration teams to show the application of certain educational, administrative, and public relations technics to the student training field, the patient teaching area, and to the field of public and professional education.

All members of the Section are urged to attend the meetings which will begin with a Section breakfast at 9:00 A.M. A short business meeting will follow. General sessions will be held from 11:00 A.M. to 12:00 noon and from 2:00 P.M. to 4:00 P.M.

We hope to get the newly reorganized Section off to a flying start. Comments, suggestions, and your criticisms will be appreciated—for only in this way can the officers of this Section Find the Common Ground in Education.

Don't forget—Sunday, June 22, 1957—Hotel Statler, Detroit, Michigan

MARGERY L. WAGNER, *Chairman*
Section on Education

New Student Members

Cleveland Clinic

Anne Bayne	John F. Frost
Janet L. Butler	Sara J. Hawk
Shirley M. Clark	Barbara L. Kohl
Rita J. Costanza	Rosine M. Korosy
Joanne K. Daniel	Juliana T. Murray
John H. Drury	Molly Jane Nielsen
Nancy Fleming	Lou Ann Riseling
Marcella A. Frato	Emma L. Spurlock

Columbia University

Carolyn Checkley

Marquette University

Doris J. Beemsterboer	Mary A. Heinzkiil

New York University

Eugene A. Edwards	Elizabeth Jakubowsky
Isabel Feldman	Zahava Konig

Florence M. Zeleznik

St. Louis University

James L. Meshcon
Sister Ann D. O'Leary

Stanford University

Vanet A. Brush
Robert J. Couch
Layton J. Gilson
Roger L. Johnson
Margaret A. Koob
Marlin N. Shields
Don W. Wortley

University of California

Diana L. Baker
Mary A. T. Baudendistel
Sandra M. Bowman
Marie W. Chong
Patricia A. Coleman
Mary G. Collins
Anita L. Doyer
Elizabeth M. Drury
Saburo Fukuda
Joan Harelik
Alice K. Kajitani
Patricia J. Kramer
Sharon K. Lander
Janalie P. LeMay
Maureen A. McGee
Jean E. McKinley
Paul N. Norton
Gene S. Oishi
Eleanor A. Pierson
Robert N. Rich
Suzanne Sampson
Sheila S. Segal
Jerry W. Smetzer
Larry M. Swick
Frances F. Tokugawa

University of Connecticut

Shirley G. Beck
Janet L. Blaney
Gail A. Bradley
Cary L. Briscoe
Dolores E. Budelis
Margaret S. Carter
Joan M. Cavanaugh
Virginia L. Chase
Diane M. Corti
John Enko, Jr.
Marvalyn Fiske
Clara R. Gendreau
Joan M. Gorbach
Carol Greer
Maryann Hearne
Nancy Herzog
Carol Hoehn
Barbara Holzbog
Lois Hornig
Carol Huettner
Clifton Johnson
Suzanne R. Joseph
Meredith Kilner
Maryann D. Klapatch
Carol J. Krumenaux
Barbara A. MacMeekin
Virginia M. Merly
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Barbara Powers
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Graduation Exercises at Northwestern University

Graduation exercises of the 35th class in physical therapy at Northwestern University Medical School were held at 6:30 P.M., October 4, 1956 in the auditorium of the V. A. Research Hospital in Chicago. Dr. Edward L. Compere, Professor and Chairman of Orthopedic Surgery at Northwestern University, addressed the graduates. Dr. Ben L. Boynton, Professor and Chairman of the Department of Physical Medicine, presented the certificates in physical therapy and Miss Beatrice Marks, President of the Illinois Chapter, American Physical Therapy Association, pinned the American Physical Therapy Association membership insignia on each graduate.

The traditional Alumni Dinner followed graduation exercises, with the newly graduated alumni as guests of the Northwestern University Physical Therapy Alumni Association. Dr. and Mrs. Louis B. Newman, Dr. and Mrs. Ben Boynton, Dr. Frederick Jung, Miss Marks, staff members and clinic supervisors were also guests.

CONFERENCE 1957

MICHIGAN CHAPTER

of the

AMERICAN PHYSICAL THERAPY ASSOCIATION

cordially invites

YOU

to attend the

34TH ANNUAL MEETING

of the

AMERICAN PHYSICAL THERAPY ASSOCIATION

HOTEL STATLER, DETROIT

JUNE 23 TO 28, 1957

Welcome to the State that Helped Put America on Wheels!

A half century ago local transportation was limited to the horse and buggy, the bicycle, and the pedal extremities. These means of locomotion were too slow for the Michiganders. Thus, the "horseless carriage" was born. This first automotive creation scared the horses, needed a strong arm to crank it, could be repaired with a piece of string and a hairpin, did not require air in the tire, and spent most of the time in the mud, waiting to be hauled out by the mules. Progress had been made; however, this was a far cry from the present push button starter, automatic shift, modern gas station and garage, and super express highway, all of which resulted from the steady improvement of man's creative designs in the original "horseless carriage."

To produce the number of automobiles demanded by the rapidly increasing American population, more and better materials were needed. Since Michigan is surrounded on three sides by large bodies of water which had been used by the Indians, explorers, and missionaries, as transportation routes, it was only natural that these lakes and the connecting rivers developed into heavily traveled lines of traffic. Freighters, barges, and ferry boats carried ore and steel into Michigan, and automobiles out to all parts of the world. Other means of transportation advanced equally as fast during this period. As speed and ease of travel improved, relatives and friends once considered as living far away suddenly became close neighbors.

With every phase of progress, there is a fluctuating growth and development which spreads and modifies the general character of the whole picture. This perpetual striving for something better than his father knew or experienced is characteristic of man throughout the ages. For this reason, the Michigan Chapter chose for the 1957 Conference the dynamic theme, "Living—through Growing, Learning, and Doing."

One of the most significant advances in this same fifty year period has been in the field of medicine. Increased knowledge of the various systems of the body has resulted in the development of specialization. The scientific contributions of the men in their respective fields have culminated in a better understanding of the interrelationships among the physiological, psychological, pharmocological, emotional, and environmental influences affecting man's needs and his desires. The concept has changed from a sick or disabled patient to a comprehensive program of preventive medicine, diagnosis, definitive treatment, and the adjustment of the individual to his return as a productive member of society. Man not only gets off to a better start in life, but the age span has increased far beyond that enjoyed by his ancestors.

How has this progress in medicine affected man's ability to live life to its fullest extent and what part could the physical therapist play? In the program next June, a panorama divided into four symposia will present the child, the adolescent, the adult, and the elderly person living through growing, learning, and doing.

To-day is the to-morrow you were planning for yesterday, and as long as there is to-morrow, there will be progress.

Original Papers for Conference

Perhaps some of you have been working on new projects, evaluations, methods of treatment, or modifications of physical therapy procedures during this past year.

No doubt much of this material would be of interest to the APTA members and guests who will attend the Conference in Detroit next June. Would you consider sharing it? If so, plan to write it up now, so that you can present it as an original paper during the time set aside for this phase of our work, and then submit it for possible publication in the *Review*.

Please give this subject your earnest thought, and if your answer is "yes," send the title of your paper by February 1 to Marcia Shaw, 28271 Jefferson Ave., St. Clair Shores, Michigan.

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ADAPTIVE EQUIPMENT

The Tilt Board: An Aid To Rehabilitation. A. B. Morrissey and N. Sherman, Am. J. Nursing, 56: 1146-1147, September 1956

ADMINISTRATION

Adopting the Uniform Chart of Accounts. A. W. Morris, Hospitals, 30: 48-50, Oct. 16, 1956

AMPUTEE

Rehabilitation of the Amputee. C. J. Kaplan, South African J. Physiotherapy, 11: 10-11, July 1956

ARTHRITIS

Surgical Treatment of Arthritic Feet. Darrell G. Leavitt. Northwest. Med., 55: 1086-1088, October 1956

Diagnosis and Management of Rheumatoid Arthritis. Peter J. Warter, Medical Times, 84: 812-819, August 1956

Gout. Patrick Cashin, Medical Times, 84: 838-848, August 1956

BANDAGING

"Foam Rubber" Techniques of Splintage, Compression and Traction. Ernest H. Bettmann, C. P., 14: 90-95, October 1956

Effective Emergency Splinting. Douglas Lindsey, Am. J. Nursing, 56: 1120-1123, September 1956

CEREBRAL PALSY

Dynamic Considerations Underlying the Management of the Brain-Damaged Child. Leon Eisenberg, C. P., 14: 101-106, October 1956

Parents of Children with Cerebral Palsy. J. A. Margolies and H. Z. Wortis, J. Child Psychiat., 3: 105-114, August 1956

CHEST SURGERY

Critically Crushed Chests. A New Method of Treatment with Continuous Mechanical Hyperventilation to Produce Alkalotic Apnea and Internal Pneumatic Stabilization. E. E. Avery, E. T. Mörch and D. Benson, J. Thoracic Surg., 32: 291-311, September 1956

EDUCATION

Full-Time Clinical Faculty. Joseph C. Hinsey, J.A.M.A., 162: 16-19, Sept. 1, 1956

Instruction and Learning in Anatomy. J. Med. Educ., 31: (Part 2), 45-66, October 1956

Preprofessional Preparation for Anatomy. J. Med. Educ., 31: (Part 2), 32-44, October 1956

The Role of the Anatomical Disciplines in Medical Education. J. Med. Educ., 31: (Part 2), 7-24, October 1956

The Student Textbook. David C. Sinclair, J. Med. Educ., 31: 697-705, October 1956

Premedical School Education in the Social and Behavioral Sciences. Martin L. Pilot and Theodore Lidz, J. Med. Educ., 31: 692-696, October 1956

Stimulus of Research on Teaching Anatomy. J. Med. Educ., 31: (Part 2), 67-78, October 1956

Recruiting for Careers in Medical Technology. William O. Russell and Charles P. Larson, Hospitals, 30: 37-40, Oct. 16, 1956

The Critical Incident Technique in Identifying Behavioral Criteria of Professional Nursing Effectiveness. June T. Bailey, Nursing Research, 5: 52-64, October 1956

Old Problems and New Challenges in Medical Education. Edward L. Turner, J.A.M.A., 162: 554-558, Oct. 6, 1956

The Social Sciences and Improvement of Patient Care. Esther L. Brown, Am. J. Nursing, 56: 1148-1150, September 1956

ETHICS

Is Nursing Meeting Its Obligation to Society? Fred Witney, Am. J. Nursing, 56: 1127-1131, September 1956

EXERCISE

The Neumann-Neurode Baby Gymnastics. A. Pappenheim, So. African J. Physioltherapy, 11: 4-6, July 1956

HISTORY

The Natural History of Disease. William S. Middleton, J.A.M.A., 62: 568-572, Oct. 6, 1956

LEGISLATION

Medicine, the Quack and the Law. George A. Friedman, Medical Times, 84: 849-855, August 1956

MULTIPLE SCLEROSIS

Multiple Sclerosis Symposium. P. Bailey, R. P. Mackay and F. J. Millen, Postgrad Med., 20: 292-299, September 1956

NEUROLOGY

Neurology—A Review. W. K. Jordan and H. H. Merritt, New England J. Med., 255: 468-473, Sept. 6, 1956. 255: 511-516, Sept. 13, 1956. 255: 563-569, Sept. 20, 1956

Myalgia of the Head. Robert E. Ryan, Medical Times, 84: 967-971, September 1956

Facial Nerve in Parotid Surgery. O. H. Beahrs and B. F. L'Esperance, J.A.M.A., 162: 261-263, Sept. 22, 1956

Peripheral Neuritis in Myelomatosis. R. S. Crow, Brit. M. J., (No. 4996), 802-804, Oct. 6, 1956

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OCCUPATIONAL THERAPY

Medical Direction for the Occupational Therapist. D. Elliott O'Reilly, Hospitals, 30: 36-38, Nov. 1, 1956

ORTHOPEDICS

The Etiology and Prevention of Volkmann's Ischemic Contracture. Paul R. Lipscomb, Surg., Gynec., & Obst., 103: 353-361, September 1956

Common Orthopedic Problems in General Practice. A. M. Rechtman, S. M. Albert and M. A. Wohl, M. Clin. North America, 40: 1417-1440, September 1956

Diagnosis of Congenital Dysplasia of the Hip in the Newborn Infant. Sherman S. Coleman, J.A.M.A., 162: 548-554, Oct. 6, 1956

Congenital Dysplasia and Dislocation of the Hips. W. A. Craig, M. L. Hamra, I. McDermott and E. Nicholson, Am. J. Nursing, 56: 1274-1293, October 1956

Thickening and Contraction of the Palmar Fascia (Dupuytrens Contracture) *Associated with Alcoholism and Hepatic Cirrhosis.* S. J. Wolfe, W. H. J. Summerskill and C. S. Davidson, New England J. Med., 255: 559-563, Sept. 20, 1956

PARKINSONISM

A Case Report of Parkinsonism. Herbert J. Levine, Medical Times, 84: 972-975, September 1956

POLIOMYELITIS

Use of Poliomyelitis Vaccine Under Epidemic Conditions. J.A.M.A., 162: 85-91, Sept. 8, 1956

Urologic Problems in Postpoliomyelitic Patients in Respirators. J.A.M.A., 162: 164-166, Sept. 15, 1956

Laboratory Diagnosis of Poliomyelitis. G. P., 14: 88-89, October 1956

PSYCHOLOGY & PSYCHIATRY

Helping the Physically Handicapped Child to Face the World. Ruth M. Bakwin, Postgrad. Med., 20: 218-223, September 1956

Psychophysiology. Louis G. Moench, Northwest. Med., 55: 968-972, September 1956

RECREATION

Recreation: Can You Afford to Get Along Without It? Part I. Beatrice H. Hill, Hospital Management, 82: 52-53, September 1956

REHABILITATION

Our Planning Extends Beyond the Discharge Date. Leon Ross, Hospitals, 30: 37-38, Sept. 1, 1956

Role of Rehabilitation in a Program for Handicapped Children. H. M. Wallace, J. S. Tobis, R. S. Siffert, M. A. Losty and C. H. Elledge, J.A.M.A., 162: 26-30, Sept. 1, 1956

Growing Together. A Report of Two Years of Public-Voluntary Cooperation Under a New Vocational Rehabilitation Act. Mary E. Switzer, Crippled Child, 34: 4, August 1956

Beyond the Crutch. Earl S. Miers, Crippled Child, 34: 7, August 1956

SPEECH

Voice Correction Under Pathological Conditions. A. J. Moolenaar-Bijl, Acta physiol. et pharmacol. Neerl., 5: 85-87, July 1956

Voice Diagnosis. L. W. Hildermisse, Acta physiol. et pharmacol. Neerl., 5: 73-84, July 1956

Physiology and Physics of Voice Production. J. Van den Berg, Acta physiol. et pharmacol. Neerl., 5: 40-55, July 1956

MISCELLANEOUS

Postnatal and Natal Cerebral Injuries. C. E. Brenda and C. F. Hoesaly, Arch. Neurol. & Psychiat., 76: 236-246, September 1956

Military Medicine and Care of the War Disabled of World War I. Bennie A. Moxness, Military Med., 119: 178-188, September 1956

Volkmann's Contracture of the Lower Extremity: A Complication of Patellar Tendon Transplantation. Walter R. Miller, U.S. Armed Forces Med. J., 7: 1517-1520, October 1956

Effect of Cortisone on the Defense Mechanisms of the Body. T. Nichol, R. S. Snell and P. L. Bilbey, Brit. M. J., (No. 4996), 800-801, Oct. 6, 1956

Symposium on Coronary Heart Disease. R. L. Levy (Editor), J. Chron. Dis., 4: October 1956

Reconstructive Surgery of the Hand with Special Reference to Skin Cover. Stewart H. Harrison, Brit. M. J., (No. 4995), 746-750, Sept. 29, 1956

The Formation of Urine. Leonard B. Berman, G. P., 14: 107-108, October 1956

Tender hands trained by the

MARCH OF DIMES

Join Today!

WORLD CONFEDERATION FOR PHYSICAL THERAPY *News*

Resolutions Adopted

At the third general meeting of the World Confederation for Physical Therapy held in New York, June 20, 1956, the following resolutions of concern to our profession were adopted:

Resolved, That the President of the World Confederation for Physical Therapy send to the President of the United States the Confederation's deep appreciation of his message and of the personal interest expressed therein and its most respectful greetings and prayers for his speedy and complete recovery.

Resolved, That in conveying to the World Health Organization appreciation of its decision to admit the World Confederation for Physical Therapy into official relations, the hope be expressed that the services of the Confederation will be utilized in the planning and execution of rehabilitation programs for the sick and disabled.

Resolved, That an expression of appreciation be extended to the United Nations Children's Fund for its accomplishments in assisting the countries of the world to solve problems faced by their handicapped and other needy children; and that the members of the World Confederation for Physical Therapy be requested to cooperate in all possible ways with activities related to UNICEF in their respective countries.

Resolved, That sincere thanks be conveyed to the International Society for the Welfare of Cripples for their continued interest in the World Confederation for Physical Therapy and cooperation in its efforts to improve the physical therapy services available to the disabled.

Resolved, That the grateful thanks of the World Confederation for Physical Therapy be conveyed to the American Physical Therapy Association and its President, Mary Nesbitt, for the devoted efforts of the Board of Directors of the Association, its National Office Staff, members of the New York District of the New York Chapter and of Catherine Worthingham, Chairman, and Members of the Congress Planning Committee.

Resolved, That a warm expression of appreciation be conveyed to the Canadian Physiotherapy Association for its generous hospitality which provided a welcome opportunity for overseas members to meet their colleagues in a social atmosphere.

Gift from Australia

A welcome addition to the American Physical Therapy Association library comes as a gift to the members from Peggy Verco, WCPT delegate to the Second Congress, "With many thanks for a very memorable Congress" Land of the Southern Cross—*Australia*. This book which is a beautiful picture story is designed to give people in many lands a better appreciation of Australia at a time when international attention will be focused on the country because of the Olympic Games held in Melbourne. Miss Verco also sent the Official Program for the XVI Olympiad.

World Congress ISWC

Physical therapists who plan to attend the Seventh World Congress of the International Society for the Welfare of Cripples in London from July 22 to July 27, 1957 are looking forward to the special opportunity of meeting together. Arrangements are being made for a luncheon on July 23. All physical therapists wishing to attend are requested to notify

Miss M. J. Neilson, Secretary
Chartered Society of Physiotherapy
Tavistock House (South) Tavistock Square
London W. C. 1, England

Information about the Seventh World Congress may be obtained from the International Society for the Welfare of Cripples, 701 First Avenue, New York 17, N. Y.

Student Section

Regional Student Editors

Region I—Editor Audrey Haugaard—Simmons College
University of Connecticut
Boston University
Bouve-Boston School
Simmons College
University of Pennsylvania
The D. T. Watson School

Region II—Editor Leanne E. Taintor—Columbia University
Columbia University
Albany Hospital (Russell Sage College)
New York University
University of Buffalo
Frank E. Bunts Educational Institute
Walter Reed Army Hospital (May-Sept.)

Region III—Editor Marcia Field—Med. College of Virginia
Medical College of Virginia
Charity Hospital of Louisiana
Duke University
Baylor University
Hermann Hospital
University of Texas
Medical Field Service School (Sept.-May)
Brooke Army Hospital (May-Sept.)

Region IV—Editor Carol Vacca—St. Louis University
Northwestern University
State University of Iowa
University of Kansas
Washington University
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Ohio State University

Region V—Editor Gail E. Barrand—University of Wisconsin
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University of Minnesota
Mayo Clinic
University of Michigan
University of Colorado
University of Wisconsin
San Juan, P. R.

Region VI—(Mrs.) Marie W. Chong—University of California
Childrens Hospital
University of Southern California
University of California
College of Medical Evangelists
Stanford University
Letterman Army Hospital (May-Sept.)

Chairman—Audrey Haugaard

The Patient Patient

There are unsung heroes in every war and equally true, there are those who escape glory in many of the ordinary dramas of life—the stage crew in a Broadway show, the sound effects man on a radio program, the scrub nurse whom we all recognize as essential in a smooth running operating suite.

Any physical therapy department with which students affiliate has its unsung heroes also, and to them I should like to pay my respects. You, as students, will recognize readily these unsung heroes. They are the patients—any patient, who is fortunate (or unfortunate) enough to have his treatment turned over to a physical therapy student. I call him "the *patient* patient," for certainly this virtue plays a great role in his existence.

Have you ever tried to imagine yourself as this person?

Suppose you were the new patient reporting for treatment to the physical therapy department for the first time. You are skeptical; after all, what is physical therapy? You have never heard the term. What good will a heat treatment—diathermy, I think the doctor called it—do for your sore knee? You have one "wooden leg" already; let's not take the chance of losing the other.

Then suppose even further, that after a few days of treatment, during which, may I add, your knee begins to feel better, you are introduced to a physical therapy student who will give you your daily diathermy treatment. That's fine with you, of course, but you begin to doubt your willingness when the student begins to wrap the diathermy cable around your prothesis.

Or suppose you are the CVA for whom ambulation has been prescribed. After not having walked for many months, you feel you are entitled to some unsteadiness. Add to this the unsteadiness of the student walking behind you, and you feel like a circus gymnast attempting the tight rope for the first time.

You may be the patient who gets an infrared treatment on the back. You are an understanding person and you realize that everyone makes mistakes. But after several weeks you must draw the conclusion that students are much more prone to forget to turn on the lamp than your regular therapist. But you are patient. . . .

Again you may be treated in a physical therapy department where students are perpetually present. Just as you seem to be recognizing Miss Smith because of her red hair, along comes Miss Brown with red hair also. But you try to learn.

Almost daily, as the new students arrive on the scene, you are used as a demonstration patient. Here is a real test of your patience. Daily you hear about the quads, the hamstrings, the biceps, the latissimus. You feel, there is no doubt, that someday you will be a walking anatomy book. Always however, you try to be patient.

"The *patient* patient" may come and go in a short period of time, or he may remain in the physical therapy department to see a long sequence of students move through their weeks of training. In either case I, as a student, hope he may always find reward for his many hours of trial and that he may observe and rejoice in the evolution of many fine new therapists. For his contribution to our training I say "A tribute to the *patient* patient."

ALBERTA B. WESTERHOFF
Boston University, Sargent College, 1957

Correlation of Anatomy and Physiology with the Clinical Practice of Physical Therapy

Gail Barrand, Pat Gibson, and Grace Jostad

During the freshman and sophomore years of the four-year course in physical therapy at the University of Wisconsin, the student takes courses in biology, chemistry, physics, social studies, the humanities, and other subjects required for the Bachelor of Science degree in the College of Letters and Science. The science courses are mainly prerequisites for the junior curriculum which emphasizes the basic sciences of anatomy and physiology. These in turn are prerequisite to the senior curriculum which includes the study of clinical subjects and medical sciences such as pathology, neurology, medicine, orthopedics, surgery, and the professional courses in physical therapy. There is a transition from the junior to the senior year which reflects the change in emphasis from basic knowledge to the application, or combination, of basic knowledge and clinical knowledge.

The curriculum of the junior year includes eight credit hours of physiology taught in the Medical School. The first semester is primarily concerned with the fundamental physiology of the systems of the body. Lectures are given, textbook assignments are studied, and laboratory experiments are performed. During the second semester, in the study of the physiology of activity, human experimentation is introduced, and the student applies his knowledge of fundamental physiology to problems of human activity. The experiments are performed by the students who work in groups of two, four, or more. Lecture-discussions concerning the physiological mechanisms involved are presented either preceding or following each experiment, and references in medical textbooks and current scientific journals are studied.

The following experiments illustrate the laboratory work. The effect of brief exercise upon the normal heart rate was studied in one experiment. The pulse rate was determined by radial palpation before and after walking up and down stairs. The results showed the large increase in normal pulse rate produced by stair climbing. A similar experiment showed that stair climbing greatly increased normal arterial blood pressures. The cardiovascular effects of gravity were studied by having the subject change postures. Another experiment tested the ability of the circulatory system to adapt to gravitational stresses imposed by passive change of posture and quiet standing. A tilt table was used to lift the subject from recumbency to standing. Pulse rate and blood pressure determinations were made during the control, experimental, and recovery periods. The data were tabulated, graphed, and an interpretation of the results was written. In other experiments energy expenditure, posture, equilibrium, and kidney function were studied.

First semester anatomy for the physical therapy students at Wisconsin is similar to most beginning courses in gross anatomy, with emphasis on the living subject, including the student's own body and radiographs of living subjects. The first four to six weeks are spent in a study of osteology. During the rest of the semester cadaver specimens are used in the study of muscles, their origin, insertion, innervation, and blood supply. By a mechanical analysis of each

muscle on the cadaver, the actions one could expect from the particular muscle are found, and by knowing which actions are possible at a joint, the axes of rotation are determined. With the placement of this axis at a joint, the relation of the muscle to the axis can be demonstrated. Due to the arrangement of muscle fibers, the possible pulls exerted by the muscle can be seen. The combination of the relationships and pulls of the muscle around the axis of rotation show what actions the muscle is in a position to perform.

Through a three credit course in functional anatomy in the second semester, a closer sense of application is realized.

To illustrate individual variations and to obtain a more extensive familiarity with human anatomy, dissection of cadaver specimens is performed. Besides the knowledge obtained, great personal achievement is fulfilled from dissection. Each student dissects a specimen to demonstrate a particular area or structure to other students and faculty members.

A great deal of attention is also given to the study of peripheral nerve injuries of both upper and lower extremities. For example, Erb's type of brachial palsy of the upper arm was described with the point of injury being indicated. The problem was to name the nerves, muscles, and movements involved and the degree of involvement.

By the use of electrical stimulation, muscle actions were studied. From examination on the cadaver or even from a study of pictures one might arrive at the same conclusions, but the electrical stimulation provides a clear and impressive demonstration. The chief object in using the method was to observe the actions produced when an individual muscle is stimulated through its nerve supply.

Muscle Function by Wilhemenia Wright provides a detailed and comprehensive explanation of muscular movements at each joint, including prime movers, synergists, antagonists, and fixators. The author made her observations by palpation, so in times of question, electromyography was used to verify her conclusions.

The senior year in physical therapy is 12 months in length. The latter three months consist wholly of the practice of technics used in treatment. With continual studying, observation, and clinical practice, the emphasis is on clinical knowledge.

Knowing the physiological effects of muscular activity is most important when an exercise program is set up for a patient. Although the same physiological mechanisms are involved in the cardiac, chronically ill, the long term bed-rest patient, and the normal person, the exercise tolerance will vary. The course in therapeutic exercise brings to focus these variations and adapts the use of movement to achieve the best results for the treatment of the disabled. Ultimately, the coronary system is the limiting factor in exercise. Hence, graded exercise is important for the cardiovascular patient who must never be overtaxed. Care must be taken when an exercise program is planned for a patient after prolonged bed-rest, as the energy cost of activity is two to four times that of the normal. Observation of the patient's pulse rate, perspiration, color, and changes in respiration are all important guides for planning the therapeutic dosage of exercise.

Again, as in exercise, the effects of gravity test the ability of the patient's circulatory system to adapt. Getting a patient up in the vertical position for the first time after prolonged bed-rest is often handled by a physical therapist. Consequently, the physical therapist must understand the physiologic reaction to change in posture and gravity. Only then can he be of aid to the patient.

With the basic knowledge acquired in human anatomy during the junior year, the senior student is equipped to evaluate abnormal movement patterns in patients. Weaknesses, diseases, or injuries affecting muscles and nerves cause peculiar postures and gaits. Now the student is able to visualize and understand how synergists may take over in a specific joint movement in which the prime mover is no longer effective. This encourages one to constantly strive to increase his knowledge of functional anatomy.

The muscle chart is invaluable in the prescription of therapeutic exercise. Through palpation the observant student learns and applies a great deal of functional anatomy. As a result, the muscle chart is more accurate and the exercise program more effective.

Observation in surgery shows the Senior how man can aid nature in performing movements which would otherwise be impossible. For example, understanding a tendon transplant is helpful to the future physical therapist because the new insertion, course, and action of the muscle can actually be seen. Following surgery the physical therapist aids in the reeducation of the transplanted muscle.

In electrotherapy a thorough knowledge of anatomy and neuroanatomy is essential. Anatomy is important in muscle stimulation since it is necessary in order to find the desired motor point. Neuroanatomy is required in the determin-

ation of the level of a lesion by electrodiagnosis.

At the completion of the course in physical therapy the student is able to combine his basic and clinical knowledge, in the treatment of diseased and disabled patients.

Enthusiasm, Improvement, and Growth at the University of Connecticut

Enthusiasm, improvement, and growth—these seem to be key words around the School of Physical Therapy at the University of Connecticut.

Enthusiasm is noted everywhere—from the Freshmen right up through the faculty. The Juniors, of course, are getting their first real taste of physical therapy, and even carrying Gray's *Anatomy* all over campus hasn't dulled their enthusiasm or eagerness.

And we Seniors—42 strong—are still talking about and comparing our summer affiliations. Each is sure that his particular affiliation area was the best. During this one month of practical experience, we became more acutely aware of the amount of knowledge that we have yet to acquire between September and graduation in June; so we have settled down to the serious business of studying, and studying with more determination and perseverance than ever before.

One short summer has seen a tremendous amount of growth and change in our rapidly expanding P.T. school. We welcomed a new member to our teaching staff this fall. She is Miss Barbara Teasdale, former clinical supervisor at Hartford Hospital. In addition to a new faculty member, our therapeutic exercise classes have acquired two brand new, fully equipped, and very badly needed classroom gyms. Our affiliation areas have increased also. The total is now 17 with the recent additions of Kessler Institute for Rehabilitation in West Orange, N. J.; New England Medical Center, and Liberty Mutual Insurance Rehabilitation Center, both in Boston; St. Vincent's Hospital, New York City; Memorial Hospital in Chapel Hill, N. C.; St. Francis Hospital, Hartford, Conn.; and Woodruff Restorative Center in New Haven, Conn.

The student branch of the APTA, under the capable leadership of President Beverly Klambt, has been quite active on campus so far this year. We started the ball rolling with a combination business meeting and get-acquainted party for the 72 Freshmen P.T.'s. The club also sponsored a booth at the Activities Fair which was part of University of Connecticut's 75th Anniversary celebration. Needless to say, the electrotherapy equipment that we demonstrated, created a great deal of interest, not to mention a few surprises for some of the curious but unsuspecting subjects. Also, in conjunction with the student branch of the APTA, this year at Connecticut we hope to realize our goal of 100 per cent membership of Juniors and Seniors in the student APTA.

We are confident that the rest of this school year will be as interesting and rewarding as the first half has been.

PHYLLIS BARTELL
University of Connecticut, 1957

Letterman Army Hospital

Upon completing a 29 week didactic phase of training at the Army Medical Service School, Fort Sam Houston, Texas, our class of 17 students began a 20 week period of clinical training —6 stayed at Brooke Army Hospital, 6 went to Walter Reed Hospital, and 5 came to Letterman Army Hospital. After three months in this applicatory phase, there is much to say concerning student life at Letterman, physical therapy, and San Francisco. It might be interesting to note that none of us is a native of California but we hail from Oregon, Ohio, Michigan, Connecticut, and Massachusetts. As novices in California, we highly recommend San Francisco for its scenic beauty, variable but pleasant climate, fabulous restaurants and ample entertainment. The truth of the matter is that not one of us wants to leave; consequently, "home" is where we happen to be at the present time.

The Physical Therapy Department is divided into five sections—hydrotherapy, thermotherapy, electrotherapy, therapeutic gymnasium and the wards. Four weeks are spent in each section where the clinical training is comparable to the every-day job of a graduate physical therapist. Exposed to all types of physical therapy modalities and patients, training reveals itself as experience. As learning is replaced by practical knowledge, so lack of confidence and inexperience are replaced by technical knowledge and a foremost desire to treat not a patient but a person, with humane care and understanding. Recurrent checks are made of the various diagnoses seen and the modalities applied in order that a wide range of experience may progress effectively. While working on the wards, we are afforded the opportunity to peek in on ward rounds, to see what goes on in the castroom, and to participate in surgical observation. We are always welcomed at orthopedic conferences where patient problems are discussed by civilian consultants and members of the Physical Medicine Department. We

are included at weekly staff meetings where a program of medical interest is presented by a staff member. As students, we have been given the opportunity to present a program of our own choice in the near future. We are planning to talk about the treatment of burns in regard to the physical therapy aspect—in particular, the open exposure method used at Brooke Army Hospital.

Journal Club classes consist mainly of reporting on current medical literature and detailed case studies. Concurrent classes include a review of muscle testing and therapeutic exercises along with other phases of physical therapy. We are presently beginning to review anatomy and physiology in preparation for the Registry examination which is coming up in a few weeks.

Interviews with Captain Keegan, student supervisor, keep us on our toes as efficiency reports are discussed individually. Problems of a personal nature are also listened to along with perhaps a friendly chat.

During our last month as students, we will go on four field trips. These will include a visit to Fairmont Respiratory Center, the California Rehabilitation Center (formerly Kabat-Kaiser Institute), the Cerebral Palsy Diagnostic Center at the University of California, and the Prosthetic Laboratory at Oak Knoll Naval Hospital.

On the social side, informal parties and open house gatherings add to the spontaneous friendliness that exists among the personnel at Letterman.

We are looking forward to accepting the responsibilities of physical therapists and our obligations to the medical profession.

JOSEPHINE M. MORELLI
2nd Lt., WMSC

Physical Therapy Program at Simmons

We feel that the Simmons College Physical Therapy Program offers a unique approach to clinical affiliations. During the course of our training we affiliate with four hospitals a total of three times each. Because we are in each hospital three different times, we are able to observe the progress of long term patients. This is particularly true of the polio patients.

In addition we have the experience of maturing in our capacities as student therapists. By the time we return to the hospital for the third time, we have more confidence in our abilities and are better able to grasp the scope of the work at that particular affiliation.

We do not feel that our work experiences are limited, by seeing only four hospitals, because each stresses a different phase of physical therapy. We found geriatric problems at the Peter Bent Brigham Hospital, children's conditions at the Children's Medical Center, functional disabilities at the Bay State Rehabilitation Center, and general orthopedic and neurological conditions at the Massachusetts General Hospital.

LOIS HOWK
LORRAINE MAGNUSON
Simmons College, 1957

Report from Simmons

Now that our class of 16 is nearing graduation time, many of us have reminisced over the clinical and educational experiences and courses which have enriched our lives not only as physical therapists, but as human beings. We can think with pleasure that nearly all of us have contributed in some measure to the muscle reeducation of a boy of high school age whose extremities and trunk were quite severely involved in last year's polio epidemic. Now each morning we are privileged to see him using a two point crutch gait on his way to school with his friends.

During the summer months our group took a course at the Massachusetts Mental Health Clinic (formerly Boston Psychopathic Hospital) where we as a class interviewed patients with various forms of mental illnesses. After a course of this type we have felt better prepared to treat patients who are emotionally upset and need understanding from their physical therapist. This course and our psychology courses, especially psychology of the handicapped, have helped us to overlook the unpleasant trivialities and minor crises we meet every day at the hospital.

I know every member of the class has come a long way from our initial day of clinical practice last February. On that day my first patient was a young adult whose arms and legs were nearly useless following polio. I was to give him passive and some active exercises. In response to my command "Raise your leg," my patient said, "Always say *please try* and do something, for sometimes the patient isn't able to perform the activity." That psychology lesson I shall never forget.

We have treated many patients but there are some we shall always remember. Each of us has been filled with admiration for the college student striken with polio during last summer's epidemic who not only lost the use of his arms

and legs but has since lost his eyesight, and yet inevitably greets us cheerfully and jokes with us as we give him passive range and motion exercises each day. Another patient who caused one of us to feel a sense of satisfaction is an elderly woman who following a CVA became aphasic and had a flail arm. One morning while the student was exercising her arm, nearly all motion came back. After the treatment was completed, the patient still aphasic gently pulled the student therapist's head down to her level, took the bobby pins from her hair, hastily placed them in her own, and then sank back into her pillows. For now that her arm was cured it was time to make herself look pretty again. These are experiences that make us happy we chose physical therapy as a profession.

ROSAMOND HANLON
Simmons College, 1957

High Lights of the Second Congress: Student View

We hope that these comments by students who attended the Second Congress of the World Confederation, held in New York City in June, will be of interest to student readers who were unable to join us for the week's events.

Sincerely,
AUDREY HAUGAARD

From the standpoint of clarity and brevity, the most interesting presentation at the World Confederation was the Symposum on Prosthetics: Research, Developmental Aspects and Training. Dr. Kessler and his staff initiated a desire in me, as a student, to become better acquainted with prostheses. This desire, without a doubt, came as a result of a more pronounced understanding of the patients' needs as well as the improvements being made in prosthetics that were introduced during this symposium. I wish to express the fact that this was the highlight of the Confederation for me.

FRANKLIN BOWLES, 1957
University of Connecticut student representative to the Confederation.

Of the memorable presentations at the Second Congress the lecture and movie by Signe Brunnstrom, demonstrating the practical application of associated reaction patterns in the hemiplegic, was exceptionally profitable and educational. The methods which were specifically presented gave a deeper meaning to work with hemiplegics during student affiliation.

JANE COLE
University of Wisconsin, 1956

The highlight of the whole convention for me was the session under Dr. Bennett of Warm Springs—Orthetics for Function: Prescription and Patient Training. It pointed up the physician's reasons for prescription of the device for support and increased function in muscularly weakened patients and the part that the physical therapist must play in such a program. Certainly a most interesting and informative presentation.

JANE F. LAMB
Bouvé—Boston School, 1956

One of the most interesting talks at the convention was entitled, Reports by Principal Observers from other Nations. Physical therapists from four or five foreign countries, including Korea and South Africa, told of the needs and status of physical therapy in their countries. It was interesting and heartening to hear of the progress of physical therapy in these so-called "less advanced" countries.

JANET LEMKE
University of Wisconsin, 1956

Of all the sessions I attended at the Second World Congress of Physical Therapy I enjoyed most the Friday morning session by the group from Georgia Warm Springs because I felt it was of universal interest. These appliances and their uses are not limited to polio patients but can be widely expanded in other areas. The presentation of this group, unique in orthetic appliance development and their use, was excellent and stimulating.

JANICE MILLER
University of Wisconsin, 1956

The Second Congress of the World Confederation for Physical Therapy was a meeting of the world's physical therapists. The immensity of such a large group all working with one intent toward one goal has left a great impression upon my mind.

Through the many inspirational speakers representing this large group, I, as a student therapist, was presented with a great challenge.

ALBERTA B. WESTERHOFF
Sargent College
Boston University, 1957

A Goal Directed Push

On an afternoon in late autumn the Seniors and 12-month certificate students of physical therapy from the University of Pennsylvania boarded a chartered bus for a memorable trip to the duPont Institute for Crippled Children in Wilmington, Delaware. The bus passed through the massive stone gates into beautiful and well kept grounds where flowers were still blooming. On entering the hospital proper, the group was conducted into a large auditorium, to be introduced to Dr. Alfred Shands, administrator of the Institute, and President of the American Orthopaedic Association. Dr. Shands lectured to us on congenital malformations, presenting slides and X rays. He discussed progressive stages of rehabilitation, and we were made aware of the importance of our profession in helping these children toward a new life. His talk gave many of us a much-needed "push" toward a goal that once seemed insurmountable.

After the lecture, we were conducted on a tour of the hospital.

The Institute, founded in 1935 through the efforts of Alfred I. duPont, stands on his Delaware estate. After Mr. duPont's death, Dr. Shands, an assistant professor at Duke University in North Carolina, was appointed director. The Institute is now endowed by the state of Delaware and has a staff of ten physicians, (three full-time and seven consultants), a full-time physical therapist, an occupational therapist, nurses, and maintenance workers.

Patients range in age from one day to sixteen years and are referred to Dr. Shands by physicians from lower Pennsylvania, New Jersey, Delaware, the lower portion of Virginia, and Florida. Thirty-five to 40 per cent of the children come for plastic operations, i.e., cleft lips and palates. A few polio cases are taken, but most of these are provided for by the National Foundation.

The Institute has a well equipped and well coordinated outpatient clinic as well as two research laboratories, one for chemical work and another for bacteriology. The library with subscriptions to 160 periodicals is equipped to supply source material for research in many branches of the field.

The hospital is usually filled to its capacity of 60-63 beds. Two full-time teachers are employed for daily classroom activities, which are scheduled from 8:30 a.m. until 2:30 p.m.

The younger children have a playroom under the direct supervision of an occupational therapist. A dentist visits the hospital every other week, and there are two surgeons at the Institute for plastic and orthopedic operations.

Visitors' day comes the first Sunday of every month when two members of each child's family are welcomed for consultations and are then given two hours to visit with their children.

At the end of our tour, we returned to our bus and headed for Philadelphia, feeling confident that at least 60 crippled children were on their way to the best possible chances for happiness.

ELLEN A. GRANT
University of Pennsylvania, 1957

Ask Your Community Leaders to Help In Your Recruitment Program

In planning and implementing your recruitment program emphasis should be put on the responsibility of the community to build better health services. Enlist the aid of local women's clubs, youth-service organizations, the PTA, volunteer health workers' groups, business men's and women's associations, church and fraternal groups, farm and labor groups, the YM and YWCA, YMHA, YWHA, and the Chamber of Commerce in your recruitment drive. Show the need for more physical therapists and ask the local leaders of these organizations to enlist the active cooperation of their groups in your recruitment program.

Physical Therapy Programs

APPROVED BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

Schools offering the four year program leading to a baccalaureate degree accept high school graduates and transfer students. Schools offering the 12 to 16 months' program leading to a certificate accept students who have completed all or most of their undergraduate work providing they meet certain course requirements. Recipients of a degree and/or certificate have equal professional status. For specific information regarding each school's entrance requirements, tuition, and other fees, write to the physical therapy director indicated below. All students should investigate course requirements *early*.

	Degree	*Certificate*
CALIFORNIA		
Mary J. Dodge School of Physical Therapy Childrens Hospital Society 4614 Sunset Boulevard Los Angeles 27	‡	†
R. William Berdan School of Physical Therapy College of Medical Evangelists 312 N. Boyle Avenue Los Angeles 33	†	†
Lucille Daniels Division of Physical Therapy Stanford University Stanford (Palo Alto)	†	†
Margery L. Wagner Curriculum in Physical Therapy University of California The Medical Center San Francisco 22	†	†
Charlotte W. Anderson Department of Physical Therapy University of Southern California University Park Los Angeles 7	†	†
COLORADO		
Dorothy Hoag Curriculum in Physical Therapy University of Colorado Medical School Denver 20	†	†
CONNECTICUT		
Frances Tappan School of Physical Therapy U 101 University of Connecticut Storrs	†	
ILLINOIS		
Elizabeth C. Wood Course in Physical Therapy Northwestern University Medical School 303 East Chicago Avenue Chicago 11	†	†
IOWA		
Olive C. Farr Physical Therapy State University of Iowa Hospitals Iowa City		†
KANSAS		
Ruth G. Monteith Section of Physical Therapy University of Kansas Medical Center Kansas City 12	†	†
LOUISIANA		
Isadore Brown, Acting School of Physical Therapy Charity Hospital of Louisiana New Orleans 12		†
MASSACHUSETTS		
Adelaide L. McGarrett Physical Therapy Department Boston University Sargent College 6 Everett Street Cambridge 38	†	†
Constance K. Greene Department of Physical Therapy *Bouve-Boston School, Tufts University Medford 55	†	
Shirley M. Cogland *Program in Physical Therapy Simmons College-Children's Hospital 300 Longwood Avenue Boston 15	†	†
MICHIGAN		
Virginia Wilson Curriculum in Physical Therapy University of Michigan University Hospital Ann Arbor	†	†
MINNESOTA		
Darrell D. Hunt School of Physical Therapy Mayo Clinic Rochester		†
Ruby M. Overmann Course in Physical Therapy University of Minnesota 860 Mayo Memorial Hospital Minneapolis 14	†	

* Accepts women students only.

‡ Baccalaureate degree available from an affiliating college or university.

	Degree	Certificate
MISSOURI		
Sr. M. Imelda, S.S.M. Department of Physical Therapy St. Louis University 1325 South Grand Boulevard St. Louis 4	†	
Beatrice F. Schulz Department of Physical Therapy Washington University School of Medicine 660 So. Kingshighway St. Louis 10	†	
NEW YORK		
Dorothy L. McLaughlin *School of Physical Therapy Albany Hospital-Russell Sage College New Scotland Avenue Albany 8	†	†
Mary E. Callahan Courses for Physical Therapists Columbia University College of Physicians & Surgeons 630 West 168th Street New York 32	†	†
Elizabeth C. Addoms Physical Therapy Curriculum School of Education, New York University Washington Square East New York 3	†	†
Mildred F. Heap Program in Physical Therapy University of Buffalo 2183 Main Street Buffalo 14	†	†
NORTH CAROLINA		
Helen Kaiser Division of Physical Therapy Box 3403, Duke Hospital Durham		†
OHIO		
Robert D. Kruse Course in Physical Therapy Frank E. Bunts Educational Institute 2020 East 93rd Street Cleveland 6		†
Gladys G. Woods School of Physical Therapy Ohio State University University Hospital Columbus	†	†
OKLAHOMA		
Thelma Pedersen School of Physical Therapy University of Oklahoma, Medical Center Oklahoma City 4	†	†
PENNSYLVANIA		
Dorothy E. Baethke Division of Physical Therapy University of Pennsylvania 205 S. 34th Street Philadelphia 4	†	†
Kathryn Kelley Curriculum in Physical Therapy D. T. Watson School of Physiatrics Leetsdale	‡	†
PUERTO RICO		
(All classes given in Spanish) Lutgarda Vega School of Physical & Occupational Therapy Professional Bldg., 8th Floor Stop 22, Santurce		†
TEXAS		
Doris E. Porter Grady Vaughn School of Physical Therapy Baylor University Hospital Dallas 1	†	†
Cecelia J. Lee School of Physical Therapy Hermann Hospital Houston 25		†
Ruby Decker School of Physical Therapy The University of Texas Medical Branch Galveston	†	†
VIRGINIA		
Susanne Hirt School of Physical Therapy Medical College of Virginia Richmond 19	†	
WISCONSIN		
Beth J. Phillips Curriculum in Physical Therapy Marquette University School of Medicine 561 North 15th Street Milwaukee 3	†	
Margaret Kohli Course in Physical Therapy University of Wisconsin Madison 6	†	†
U. S. ARMY MEDICAL SERVICE		
*Physical Therapy Course Army Medical Service School Brooke Army Medical Center Fort Sam Houston, Texas Write to: The Surgeon General Department of the Army Washington 25, D. C. Att.: Personnel Division		†

* Accepts women students only.

‡ Baccalaureate degree available from an affiliating college or university.

Please direct all inquiries regarding tuition, entrance requirements and other specific information to the school and *not* to the American Physical Therapy Association.

Abstracts

Joint Contractures.

Trevor H. Howell, 88 Kingsway, London, W.C. 2, BRIT. J. PHYS. MED., 19: 193-202, September 1956

This paper is the result of a study of several patients with contractures of their joints. These patients were hospitalized at St. John's Hospital, Battersea, and Queen's Hospital, Croydon, during the last nine years. Contractures can be separated into three separate groups: (1) postural contractures, (2) contractures due to chronic arthritis, and (3) contractures due to disease of the central nervous system. Each of these joint deformities behaves in a different way and shows a different response to treatment.

Each type of contracture is described. The course, prognosis, and treatment are then discussed according to the type of contracture. Postural contractures are the consequence of maintaining a flexed position in bed, undertreatment, and a desire by the patient to withdraw from the world. In rheumatoid arthritis the patient tends to get into a vicious circle of joint pain, muscle spasm, and immobility. The tendencies of the different joints are described and illustrated. The most frequent causes of neurogenic contractures are cerebral thrombosis followed by a hemiplegia, untreated subacute combined degeneration of the cord, disseminated sclerosis, and some complications of encephalitis.

The treatment of contractures depends upon their origin. The methods of treatment may be divided into three categories: (1) drug therapy, (2) surgical measures, and (3) physical methods. The last one is discussed in detail. In the case of postural changes, everything depends upon prevention. The mental attitude of the patient is all-important. Physical therapy and occupational therapy should be designed to encourage movements of extension. With neurogenic contractures, early mobilization is the secret of success. It should be noted that contractures of neurogenic origin are often associated with trophic changes, such as edema of the feet. Therefore, it is dangerous to employ splinting. Arthritic contractures pass through the three successive stages of muscle spasm, fibrosis, and bony deformity. Each of these three stages has a different response to treatment. The first reacts well to simple physical therapy and methods designed to relax undue muscle spasm. The second is more difficult to manage and the treatment of choice is ultrasound which often dissolves the fibrous adhesions and allows the joint to be moved more freely. The third stage, with fixed bony deformity, is not amenable to present methods of treatment and must be accepted as a permanent disability.

The results of some studies made on the use of ultrasound are included in this paper. It is interesting to note that most success was found with contractures in the second stage (fibrosis), and that most of the increased range of movement was obtained in the early treatments. After the sixth treatment, no further amelioration normally took place.

Quantitation of the Activity of Rheumatoid Arthritis. 5. A Method for Summation of the Systemic Indices of Rheumatoid Activity.

John Lansbury, Temple University School of Medicine, Philadelphia, Pa., AM. J. M. SC., 232: 300-310, September 1956

This article presents a new approach to the problem of evaluating the activity, spread, and deformity in cases of rheumatoid disease. The findings are presented as a basis for further study, emphasizing the fact that this is not a finished work. Because the etiology of rheumatoid disease is unknown, its severity can only be measured indirectly by observing its inflammatory manifestations which are both systemic and articular. This paper attempts to show how the various systemic manifestations can be combined to give a single index of total systemic activity. Each item used must be present in the majority of cases of active disease and must exhibit the same trend as the general trend of the disease. Using these criteria as the basis, the following indices of systemic activity were found acceptable:

1) ESR (erythrocyte sedimentation rate), 2) grams of hemoglobin, 3) hours of stiffness after rising in the morning, 4) hours of ordinary activity after rising in the morning before onset of fatigue, 5) number of aspirin tablets required per day for control of pain, and 6) strength of grips.

The technics for observing these indices are discussed. Of particular interest is the measurement of hand grip as an index of strength. A sphygmomanometer cuff is inflated to 20 mm. of mercury. The patient is asked to compress the cuff 3 times with each hand. The best reading (minus 20) is taken for each hand and the average for both hands is recorded.

Each index is then recorded as a percentage of average. These are added and the total divided by the number of items recorded in the case in order to obtain the Index of Systemic Activity. It is felt by the authors that this method includes all aspects of the classification used by the American Rheumatism Association, and provides a more objective and exact determination of degrees of improvement. It is hoped that both methods will be tested simultaneously in the same patients so that the merits of each may be clearly and objectively established and eventually incorporated into a single official system.

Pathological Fractures: Treatment by Internal Fixation and Irradiation.

M. B. Devas, J. W. Dickson, and A. M. Jelliffe, Royal East Sussex Hospital, England, LANCET, No. 6941: 484-487, Sept. 8, 1956

Pathological fractures through metastases in bone often immobilize the patient. Internal fixation by open reduction is usually the treatment of choice. This method offers many advantages as compared to closed reduction. The patient is freed of external splints, plaster casts or traction and, therefore, able to move about more freely in bed. This substantially reduces nursing care. Pain usually disappears several days postoperatively. Most important of all, the procedure allows the patient to go home earlier and to become ambulatory before complete union.

Contrary to these facts external fixation is advisable in some cases; if there is excessive bone involvement precluding stability of the pin and fragments or if there is danger of dissemination of the tumor cells by the operation.

Surgical technics of internal fixation will vary depending on type and location of the fracture. The Kuntscher type intramedullary nailing is usually used for fractures of the femoral shaft. A prosthesis may be needed for femoral head or neck fractures. Whether a nail or a plate is used, all tissues need careful

handling and surgery under strict aseptic technic. The results of internal fixation in 18 cases of pathological fractures are presented. Postoperatively the patient should receive an intensive program of deep X-ray therapy. Not only the fracture site, but the entire bone should be treated.

The Treatment of Burns in Children.

Jerrold M. Becker and Curtis P. Artz, Surgical Research Unit, Brooke Army Medical Center, Fort Sam Houston, Texas, ARCH. SURG., 73: 207-215, August 1956

Accidents are the leading cause of death of children in the United States. Burns, secondary to motor vehicle accidents, cause about 8,000 deaths per year; 30 per cent of these are children.

The clinical experience in the management of 85 burned children over a 5 year period is discussed. The children ranged in age from one month to 14 years. Fifty-four of the patients had third degree burns of various proportions of their skin, up to 99 per cent. There were 7 deaths among the 54 patients with third degree burns. The most frequently encountered complication was the development of fibrous contractures limiting joint range of motion.

Depending upon the degree and percentage of burned area, the early treatment of the patient will vary. A tracheotomy may be necessary if there is respiratory obstruction. Morphine is administered to allay pain and fear. Penicillin and streptomycin are started immediately. Fluid and electrolyte balance must be maintained.

After these urgent initial procedures, the local care of the burn is started. With the patient on a sterile sheet, the burned area is cleaned by débridment. The exposure method is used whenever possible. This is believed preferable to closed bandages because there is less chance of secondary infection and it requires less anesthesia and allows for more accurate weight studies. The patient with circumferential trunk burns, where bandages are required, should be turned frequently on a Stryker Frame. Positioning to diminish contractures is of prime importance. Physical and occupational therapy are started as soon as possible.

After about 3 weeks the eschar of a third degree burn has separated from the underlying tissue and can be easily excised and the area prepared for grafting. Whenever possible, donor sites are taken from one side of the body at a time. They are usually applied as sheets of skin over the burned area and held in place with a large bulky dressing. The donor sites are left exposed.

Cadaver homografts were used successfully as a temporary means in 3 patients in the series.

The Relation Between Smallpox Vaccination and Poliomyelitis.

H. D. Chalke and F. L. Clark, London County Council, London, England, LANCET, No. 6942: 545-546, Sept. 15, 1956

In a previous study it was suggested that vaccination against smallpox may offer some protection against paralytic poliomyelitis.

The records of 54 cases with the onset of paralytic poliomyelitis between 1951-1955 were examined. The patients were all under 5 years of age. Of this group 54 per cent had received smallpox vaccination and 46 per cent had not.

Of the original group of 54 poliomyelitis cases, 29 were selected for whom more detailed information could be obtained. The 29 patients were compared to a control group which were matched as to age and sex. The totals revealed that 17 children that had smallpox vaccination later had poliomyelitis and 13 vaccinated children did not contract poliomyelitis. Similarly, of the unvaccinated group, 12 had poliomyelitis and 16 did not.

In the various age groups there was also no significant indication that the smallpox vaccination offered any resistance to paralytic poliomyelitis.

Poliomyelitis in Pregnancy: Effect on Fetus and Newborn.

Morris Siegel and Morris Greenberg, Dept. of Environmental Medicine, State University of New York College of Medicine, New York, New York, J. PEDIAT., 49: 280-288, September 1956

A prospective study was made of the outcome of gestation following the occurrence of poliomyelitis in New York City from 1949 to 1953, inclusive. During this period 87 pregnancies, which resulted in 88 products of gestation, were investigated. Sixty-five fetuses were associated with paralytic poliomyelitis during gestation and 23 with nonparalytic poliomyelitis. There was no evidence of an increase in congenital defects and inconclusive evidence of an increase in prematurity. Fetal deaths were observed in from 35 to 46 per cent of the pregnancies complicated by the onset of poliomyelitis in the first trimester of gestation. Most of these fetal deaths were delivered within two weeks of the onset of clinical infection and appeared to be directly related to the occurrence of poliomyelitis in the mother.

An increase in the incidence of neonatal poliomyelitis was observed which was associated with paralytic maternal infection shortly before delivery. An increase in the neonatal mortality rate was noted which was related to neonatal poliomyelitis and to anoxemia following postmortem cesarean section in women dying of bulbar poliomyelitis.

Subcutaneous Tear of the Tendon of the Peroneus Longus.

Michael Burman, Hospital for Joint Diseases, New York, New York, ARCH. SURG., 73: 216-219, August 1956

Subcutaneous rupture of a medial or lateral inframalleolar tendon is unusual.

A case study is presented of a patient with a partial tear of the peroneus longus tendon in association with a giant peroneal tubercle. The patient, a 38 year old male, had a history of occasional knifelike pain on the lateral side of his right heel since the age of 3 years. The primary clinical abnormalities of the right lower extremity were: (1) equinovarus foot, (2) genu valgus, (3) external rotation of the lower leg, and (4) 4 inch shortening. There was considerable edema and tenderness over the area of the peroneal tubercle, and the external malleolus was enlarged.

Surgery was performed. The peroneal tubercle was reduced in size; the torn part of the peroneal tendon was resected, the proximal end attached to the peroneus brevis tendon and the distal end to the cuboid.

The patient derived much benefit from the surgery. Approximately one year later he was able to walk without pain or fatigue, wearing an inner brace with an outer strap.

The case illustrates a series of abnormalities resulting from a long fibula and an enlarged peroneal

tubercle. This caused an over-all shift in alinement of the leg. With the foot in the inverted position, the peroneal tendon was placed on a continual stretch where it gradually became torn and the peroneal tubercle became even larger.

Evaluation of End Results of Acute Anterior Poliomyelitis.

Robert L. Bennett, Georgia Warm Springs Foundation, Warm Springs, Georgia, J.A.M.A., 162: 851-854, Oct. 27, 1956

An evaluation of the end results of poliomyelitis must be made on the basis of individual patients. An adequate end result may be said to have been achieved when the patient has obtained or regained the highest possible degree of safe physical independence within the limits imposed by factors over which there is no control and, in addition, when the patient has made an intelligent adjustment to his residual physical handicap.

Since we are unable to determine precisely the actual damage to the nervous system by the invasion of the virus and its uncontrollable aftereffects, we find it easy to excuse our bad results on the grounds of unpreventable pathology.

The multiple variations of involvement make a listing of functional achievements a formidable, if not impossible, task. If we add to these variations of muscular involvement and their skeletal aftereffects the even greater numbers of variations in patients' ages, backgrounds, personalities, and environments, the listing of expected achievement becomes truly impossible. The degree to which both the patient himself and his medical supervisor have taken advantage of the full possibilities of recovery can be judged only by the experienced but unbiased physician after full consideration of all factors that determine the ultimate recovery.

Lobotomy: A Six-Year Follow-Up of Forty-Five Patients

Marvin J. Schwartz, Michael Reese Hospital, Chicago, Illinois, AM. J. PSYCHIAT. 113: 224-227, September 1956

The results of lobotomy as a form of surgical treatment for psychiatric patients have been relatively poor. Most authors report good results in about one-third of schizophrenic patients so treated. The results have been fairly uniform in spite of variations in operative technic.

This paper summarizes the results of a series of 45 patients on whom lobotomy was performed. They were followed 6 years postoperatively. Eighty-four per cent of the patients were schizophrenic.

After surgery, while the patient was still hospitalized, an attempt was made to evaluate each patient as an individual in terms of whether he benefited from the procedure. Each patient's pre- and postoperative mental status, social adjustment, and behavior pattern were evaluated by all personnel in contact with the patient.

Twenty-seven per cent of the 45 patients had been discharged and no attempt had been made to evaluate their current status. Of the still hospitalized patients 92 per cent were essentially unimproved. The largest group was still on disturbed wards. Many of the patients listed as unimproved are actually much worse than preoperatively. This may be unrelated to the lobotomy. The patients often felt resentful of the surgery and that they had been permanently crippled in an irreparable manner.

Perhaps the use of extensive psychotherapy in the immediate postoperative period might increase the possibility of improvement.

The Therapy of Parkinson's Disease.

Lewis J. Doshay, 700 West 168 St., New York 32, New York, M. CLIN. NORTH AMERICA, 40: 1401-1415, September 1956

The aim of this paper is to help the general practitioner set a program of therapy for the patient with Parkinson's disease. The material is presented from the aspects of chemotherapy, physical therapy, psychotherapy, and surgical therapy.

Under chemotherapy the drugs in common use are described in terms of their structure, dose, administration, merits, and side reactions. Psychotherapy should be employed to reassure the patient and to enlist his spirited cooperation in the treatment program. Surgical therapy is discussed very briefly as to what has been done in the past, what is being done at present, and the various experimental technics under consideration.

Physical therapy should be employed regularly through the years, if the patient is to derive maximum benefits. He should be prepared not to expect great changes, but should be made to understand that his future well-being depends on regular physical therapy. This is especially important for patients with severe rigidity and a tendency to develop contractures. Physical therapy should be directed toward health of the muscles, rather than momentary comfort to the patient. It should consist of massage, passive stretching, active exercise, and a home exercise program. Some physical therapists falsely conclude from the bent appearance and sluggish movements of the patient that he is feeble and delicate. It is important to know that these patients are generally well preserved in body and can tolerate vigorous massage and stretching.

The article is concluded by a section on the planning of a treatment program, a section on the management of side reactions, and an excellent reference list.

Electromyographic Study of Postural Muscles in Various Positions and Movements

Harold Portnoy and F. Morin, Department of Anatomy, Wayne University College of Medicine, Detroit, Michigan, AM. J. PHYSIOL., 186: 122-126, July 1956

The electrical activity of postural muscles during different positions and movements was studied by electromyography. The postural muscles of 16 normal males under study included the sacrospinalis, hamstrings, gastrocnemii, and quadriceps femoris. After the subject's skin was shaved and cleaned, suction cup surface electrodes were placed over all muscles under study.

The first position studied was standing at ease as comfortably as possible with weight evenly distributed on both feet. There was some variation among the patients, but generally all muscles under study showed slight intermittent or continuous activity. Minor displacements in the center of gravity caused a decrease in sacrospinalis activity and an increase in potential from other muscles. From the standing position, if the subject leaned forward, the sacrospinalis, hamstrings, and gastrocnemii showed an increase in activity in proportion to the amount of stretch as caused by the

leaning. Beginning from the standing position and bending forward from the hip caused increased sacrospinalis, hamstring, and gastrocnemii activity. At a point of approximately 90 degrees hip flexion, the back extensor activity decreased.

The subjects all moved from the standing to the sitting position of 90 degrees hip and knee flexion and back rounded. During the motion of sitting and standing there was considerable electrical activity in all muscles, the gastrocnemii being less pronounced. Once the sitting position was obtained, there was complete electrical silence. Lateral trunk flexion caused activity of the sacrospinalis on the convex side. Trunk rotation showed bilateral activity of the erector spinae muscles.

Stretch and mechanisms to maintain balance appear to be the major factors causing activation of these postural muscles. Skeletal characteristics and variations of position and movement will alter the activity of postural muscles.

Ventilatory and Lung Volume Determinations in Patients with Chest Deformities.

Harry N. Iticovici and Harold A. Lyons, The Cardiopulmonary Laboratory, State University of New York College of Medicine at New York City, and the Kings County Hospital, Brooklyn, New York, AM. J. M. Sc., 232: 265-275, September 1956

This is a study of the ventilatory and lung volume measurements in 7 patients with thoracic deformities. It is not a complete study but does indicate the patterns of physiologic ventilatory and volume changes to be expected in this type of patient. The patients included 2 with kyphoscoliosis, 2 with Marie-Strümpell disease, 2 with pectus excavatum, and 1 with fusion of the spine for correction of an idiopathic scoliosis. The measurements consisted of tidal volume, vital capacity, expiratory reserve, inspiratory capacity, maximum breathing capacity, residual volume, and index of intrapulmonary mixing. A clinical summary and illustration of a chest X ray are given for each patient. The paper also includes a table of the observed values and predicted values and two graphs showing the most striking changes found.

There is a reduction of the maximum breathing capacity and vital capacity of all 7 patients. The most striking effect is the reduction in the values of the vital capacity and the total lung capacity. With this finding there is an increase in the ratio of residual volume to total lung capacity. The explanation for this must be the reduction of the vital capacity, because the residual volume is near the normal value. This phenomenon is probably due to the limitation of chest expansion caused by these conditions.

Book Reviews . . . . .

Health Observation of School Children. *By George M. Wheatley, M.D., M.P.H., Third Vice President, Health and Welfare, Metropolitan Life Insurance Company; and Grace T. Hallock, co-author of* Health for Better Living Series, Understanding Health, Health Heroes Series *and other books. illustrated by Barbara Pfeiffer. Second Edition. Cloth; price $6.50. Pp. 488; illus. Blakiston Division, McGraw-Hill Book Company, New York, 1956.*

The subtitle of this book, "A Guide for Helping Teachers and Others to Observe and Understand the School Child in Health and Illness," indicates very well the intent of the authors. It is written as a reference book and also for use in teacher-education programs. Dr. Wheatley and Miss Hallock are both well qualified to write such a book on the basis of their education and professional experiences.

The teacher is in a key position to observe children as a group as well as individually and the authors felt a book of this nature would help her. The major objectives as indicated in the preface are to furnish teachers with information to help them understand what they observe in the school child and to emphasize the most prevalent disorders and physical defects they may encounter. It is stressed emphatically that with this information, the teacher is only a "lay observer" and that she reports her observations to the professional medical staff.

The book is divided into nine chapters. Chapters one and two are written as a general introduction and base for the other chapters. They discuss how to observe children accurately, point out the major health problems of this age range, describe the physical, mental, emotional, and social growth of the average child, and caution the teacher to consider the child as a whole being.

Chapters three to nine each discuss a specific area of health, i.e., the nervous system, the circulatory system, the respiratory system, the digestive system, the skin, the eyes and ears, and the bone and muscular structures. The development of these chapters follows a general pattern. The authors present first a description of each system and how it functions in the healthy child. These are discussed in medical terminology and where necessary supplemented with less technical terms. Following this the various disorders and/or physical defects which may affect this system are discussed. The teacher is given warning signs to watch for, emergency first-aid information, any necessary follow-up procedure when a child returns to school after an illness, as well as preventive measures to be taught to the children.

Throughout the book are many graphs, tables, and pictures which illustrate or supplement the written material. They seem to have been carefully selected for accuracy and reliability of the source.

To increase the effectiveness of this book for the teacher-training programs, the authors have provided at the end of each chapter an annotated list of selected references, a "Do You Know?" check test, a list of suggested follow-up activities, and the names of organizations which are interested particularly in this area of health and have educational materials available. At the end of the book the current addresses of the organizations are given. There is also presented a selected bibliography of visual aids arranged by chapter subjects for use in supplementing the text. A complete index is to be found at the end.

This is the second edition of this book and the format and arrangement follow that of the first edition. The major differences involve bringing statistical information up to date and rewriting those parts where recent medical findings or changing attitudes have made the section inaccurate or obsolete. These changes include: a revision of the immunization timetable, new information in the field of poliomyelitis research including the Salk vaccine, reports on the use of fluoridation, and a summary of a pilot study on factors affecting the incidence of childhood accidents. Some of the new topics discussed are the influence of emo-

tions on allergic disorders, research for an influenza vaccine, the new back-pressure, arm-lift methods of artificial respiration and the latest recommendations for treatment of frostbite.

The value of this book to a teacher is clearly indicated and in the reviewer's opinion might well be in every school's professional library. For others who work closely with children it has an equal value in showing them how to observe and report on the health of the children with whom they are working.

The Diagnosis and Treatment of Postural Defects. *By Winthrop Morgan Phelps, M.D., Medical Director, Children's Rehabilitation Institute for Cerebral Palsy, Baltimore; R. J. H. Kiphuth, M.P.E., Professor of Physical Education, Yale University; Charles Weer Goff, M.D., Associate Clinical Professor of Orthopaedic Surgery and Lecturer in Anatomy, Yale University. Second Edition. Cloth; price $6.50. Pp. 190; illus. Charles C Thomas, Springfield, Illinois, 1956.*

This book deals primarily with the normal person and average variations in posture, rather than the pathological variations from disease and injury. Hence its value is perhaps greater to the physical educator, the athletic coach, the teacher, and the parent (as the authors state) than to the physical therapist. However, any additions to knowledge of the "normal" add to abilities for dealing more effectively with the pathological, and thus this might well be on the list of "elective" books in the library of the physical therapist.

The book contains a compilation of postural concepts from the author's backgrounds of experience and training in related fields of physical anthropology, orthopedics, physical education, and physical rehabilitation. There is a too brief chapter on "Evolutionary Influences on the Posture of Man," an interesting chapter on "Environmental Influences," which summarizes the normal child's stages of growth and development, one on "Normal Adult Posture," and "Abnormal Varieties of Posture." The latter two chapters contain studies of the Army series of anthropometric photographs wherein 100,000 young adult males were photographed and measured. This army study is one source of the authors ratings of normal posture.

There is a chapter on "Postural Examination," for the orientation of the medical examiner who examines school children, but also containing elaborate devices for measuring posture. The two remaining chapters are entitled "Posture in Physical Education" and "Corrective Exercises for Strengthening." The former gives a brief history of concept and approach to posture in physical education, and the latter contains illustrations and descriptions of specific exercises, for trunk groups particularly. The exercises selected are good for the normal or near normal person, but for the most part are too strenuous for the average patient seen in a physical therapy department.

Proceedings of the Fourth Annual Conference on Ultrasonic Therapy. American Institute of Ultrasonics in Medicine. *Edited by David Greenwood. Paper; Free to physicians. Pp. 136; illus. Birtcher Medical Foundation, Los Angeles, 1955.*

At a conference sponsored by the Institute of Ultrasonics in Medicine in August 1955 at Detroit, a number of papers were read dealing with clinical and laboratory research in the use of ultrasonic energy in several different fields, some of which are pertinent to physical therapy.

Among the clinical studies of interest to practicing physical therapists is a study by Dr. Aldes, Los Angeles, of 3,500 cases receiving a total of 84,000 sonations. The study indicated that treatment within established levels of dosage is quite effective in the arthritides, particularly in the chronic stages. A study by Dr. Bierman, New York, shows that ultrasonic therapy is often more effective than other forms of treatment in certain of the collagen diseases. There were also reports of clinical studies on the use of ultrasonic energy in sinusitis, spasticity, herpes zoster, and neurofibromatosis.

The usefulness of the form of energy is being explored by dental researchers and by physicians developing new technics for neoplastic diagnosis. In both situations the frequency and watts per cm^2 are markedly different from their physical therapy counterparts.

In these proceedings no attempt was made to form conclusions, so this collection of papers is primarily of value to persons well versed in physics, pathology and physiology, rather than to those who are chiefly interested in indications and contraindications without necessarily understanding the mechanisms involved.

Teaching Exceptional Children in Every Classroom. (A Series of Four Pamphlets.) *Paper; Price $1.00 each. Public School Publishing Co., Bloomington, Illinois 1956.*

Challenging Gifted Children. *By Jack W. Birch, Ph.D., Director of Special Education, Board of Public Education, Pittsburgh; and Earl M. McWilliams, Ed. D., Vice Principal Taylor Allderdice High School, Pittsburgh. Pp. 49.*

Reaching the Mentally Retarded. *By Jack W. Birch and Godfrey D. Stevens, Ph.M., Administrative Supervisor of Special Education, Cincinnati Public Schools. Pp. 44.*

Retrieving the Retarded Reader. *By Jack W. Birch. Pp. 32.*

Handwriting for Left-Handed Children. *By Luella Cole, Ph.D. Pp. 17.*

A series of four pamphlets has been published under the above series title. The expressed and implied purpose of these pamphlets is (1) to provide regular classroom teachers with information concerning the nature and needs of the children and (2) to help the regular classroom teacher provide the best possible education for them.

Challenging Gifted Children

No optimum or recommended method of providing for gifted children is suggested although some space is devoted to a brief review of school organizations and approaches that are and have been used. Rather, a clear and fairly complete description of what can be done by teachers of the primary, intermediate, and secondary grades is provided.

The authors first insist that the teacher must know the gifted child or children in her room by name before a program can be planned for the teacher or the children—rather than a program for the gifted in general. This is followed by an excellent definition of enrichment for the gifted that must include not only extension and enrichment but must also be at a more rapid pace. At the primary level, "enrichment through widening, deepening, and illuminating current subject matter can be accomplished most completely if the child's basic tools of learning

are highly developed, . . ." p. 21. In addition, six essential qualities that enrichment activities must have are listed.

The section that will prove to be of value to teachers gives suggested activities in reading, arithmetic, language, science, and the social sciences at all levels.

Reaching the Mentally Retarded

The authors here are dealing with a group of children that educators have been unable to integrate into the regular classroom activities on an equal basis with normal children. Thus, most of the pamphlet is devoted to description, attitudes of others, and generalities with few specific suggestions that have been demonstrated to be of value in solving the problems of the mentally retarded.

It is essential that every child have experiences that are satisfying, that are worthwhile, and that the child have success. How is this possible in the academically oriented classroom — the area of greatest disability for the retarded? The authors suggest such compensatory activities as singing, the arts, manual skills, and social areas — and avoid emphasis on the academic areas.

In general, the pamphlet contains a number of good general principles for teachers to follow in relation to retarded children until these children can be placed in a special class. The necessary discrete curriculum required by the mentally retarded is not provided for under this type of school provision.

Retrieving the Retarded Reader
Revised Edition.

Retrieving the Retarded Reader is a valuable little pamphlet that would be of value to most teachers and should be widely read. It clearly describes the kinds of reading that can be expected at each level so that the teacher can plan a reading program for each child at his level.

Teachers who conscientiously follow the suggestions of the author will be aiding most of the retarded readers in their classrooms. A good, short bibliography is also included that teachers who become interested in the problem will undoubtedly wish to read.

Handwriting for Left-Handed Children

This is an interesting and informative description of the handwriting problems of left-handed children. The author carefully analyzes how these children write and the problems they encounter as the result of attempting to adjust to a right-handed method.

The last half of the pamphlet is devoted to the description of a method whereby left-handed children can be taught to write with a minimum of strain and maximum legibility. Here the author makes a point that applies to the handwriting of *all* children and that should be remembered by all teachers of handwriting. Handwriting is a visual-motor skill involving eye-hand coordination and ". . . the first step in producing better penmanship for all children is the realization . . . that *any legible writing which is produced without strain is good writing.*"

The Anatomy of the Head and Neck. *By Barry J. Anson, Ph.D., Profesor of Anatomy, Northwestern University Medical School, Chicago, Ill. First Edition. Cloth; price $6.50. Pp. 101; illus. W. B. Saunders Company, Philadelphia, 1956.*

This is specifically an atlas devoted to details of the structure of the head and neck. As the author states in the preface, it is a book designed primarily for dental students. It contains a series of illustrations of painstaking preciseness, many of which are views seldom encountered in the standard anatomical atlas. The artist has successfully clarified points of former confusion and has realized a depth of field that is sometimes three dimensional.

Although the text is limited it is clearly written and well arranged in reference to the illustrations. Of particular interest are the complete and precise captions used with each drawing. They help greatly in understanding otherwise difficult details as shown. The fact that all of the illustrations are originals taken from new dissections adds to the value of this book.

Despite its purpose for students of dentistry it contains two sections of interest particularly for physical therapists. These are the sections of both text and drawing related to the muscles of the face and mastication and those of the muscles of the neck. The latter are especially well done and provide an unusual opportunity to understand the relations of these muscles to each other as well as an appreciation of their functional significance.

Although this book has limited usefulness to the general field of physical therapy, it would be a valuable addition to school libraries and department reference collections.

The reviews here published have been prepared by competent authorities and do not represent the opinions of the American Physical Therapy Association.

Our Book Reviewers for January

Eleanor J. Carlin, Associate Professor, Division of Physical Therapy, University of Pennsylvania, Philadelphia.

Dorothy M. Dean, Physical Therapy Center, Manitowoc, Wisconsin.

Marion Elizabeth Duff, Teacher, Cerebral Palsy Classroom, D. T. Watson Home for Crippled Children, Leetsdale, Pennsylvania.

James E. Griffin, Associate in Physical Therapy, University of Pennsylvania, Philadelphia.

G. Orville Johnson, Associate Professor, Syracuse University, Syracuse, New York.

What's New . . . . . .

For more information on items write to The Physical Therapy Review, 1790 Broadway, New York 19, N. Y.

New items which may be of interest to physical therapists will be mentioned in these pages each month. The accompanying explanations are made by the manufacturers and have not been investigated by the *Physical Therapy Review.*

10. Mosaic Tile Kit

The Mosaic Tile Craft Kit contains material to create a 9″ x 12″ mosaic picture suitable for framing. Kit includes pre-planned adhesive-coated board, "squared off" like an outlined painting and a generous supply of vinyl tile sheets, prescored into ½″ squares. Vinyl tiles are simply broken off sheet as needed and pressed onto appropriate squares on the adhesive-coated board. Odd shaped tiles are easily trimmed with scissors. A special tile mortar, is spread over the entire surface of the tiled area, filling in all the cracks and sealing in the tiles permanently. Excess mortar is removed with a damp cloth. Tiled picture is then polished to high lustre and ready for framing. There are six different subjects to choose from.

Hobby-Time Manufacturing Co. also supplies bulk tile in 30 brilliant colors which can be used to decorate table tops, wooden bowls, coffee cans, glass bottles and countless other household objects. Hobby-Time Manufacturing Co.

11. Long Tub Brush

Tub Master Tub Brush is 22 inches long with a plastic grip, replaceable foam rubber head, and long-lasting curved aluminum handle. It is suitable for cleaning bathtubs or hydrotherapy equipment. Fascole Corporation.

12. Portable Shoulder Wheel

Portable Exercise and Shoulder Wheel is designed for over-bed or wheel chair use as well as in the physical therapy department. The wheel is mounted on a "telescopic" tube with height adjustment, has a steel base and lock casters. The wheel itself is mounted with swivel joint and is adjustable to five positions from vertical to horizontal. The counter-balanced wheel is mounted on roller bearings with sensitive resistance adjustment. La Berne Manufacturing Co., Inc.

You can set up productive

PHYSICAL THERAPY RECRUITMENT TIE-INS

with your community's campaigns

National Foundation for Infantile Paralysis—"March of Dimes" January

Use this check list to make sure that you are taking advantage of every opportunity to tie-in your recruitment program with your local drives. These suggestions are good possibilities for easily and effectively publicizing the career opportunities in physical therapy through the cooperation of the campaign chairmen in your community.

Window displays—Show your posters and literature with campaign material in stores (department stores, specialty shops, drug stores, hospital supply companies); community health and welfare agencies; and youth-service organizations.

Exhibits—Set up bulletin board- and table-exhibits in schools; libraries (public and school); adult education centers; health centers; hospitals and clinics; conventions; civic and government agencies; YMCA, YWCA, YMHA, YWHA; Girl Scouts, 4-H, etc. clubrooms; men's fraternal and civic clubs; women's clubs (lounges, libraries, and lobbies); PTA meeting rooms; church recreational centers; and railway, bus and airline terminals.

Distribution of literature—Have your recruitment brochures distributed with the local campaign materials (mailings and handouts at meetings).

Newspaper publicity—daily and weekly, including county newspapers.

Local Advertising—plugs in retail ads (space donated by advertisers), or your own recruitment ads sponsored and paid for by a local group of civic leaders.

Be alert for publicity tie-ins every day—wherever you are. The possibilities for getting recruitment help through tie-ins with your community's March of Dimes and your community's health agencies' drives are unlimited.

Classified WANT-ADS

PHYSICAL THERAPIST—Bellevue Hospital has opening for a physical therapist. Extensive physical medicine and rehabilitation program in 2,800-bed general hospital; 80-bed rehabilitation wards for children and adults. Intensive training for either beginner or experienced therapist under the directorship of Dr. Howard A. Rusk. Liberal vacation and sick leave allowances. Pension plan, Civil Service status. Starting salary $3,750. Contact S. E. Bilik, M.D., Dept. Physical Medicine and Rehabilitation, Bellevue Hospital, New York City 16.

WANTED: YOUNG female physical therapist for work in orthopedic surgeon's office. Good starting salary with regular increases. Office is new and air conditioned. Write G. R. Dawson, Jr., M.D., 251 West Palmetto Street, Florence, South Carolina.

PHYSICAL THERAPIST, male or female, APTA, to work in well equipped, 70-bed rehabilitation hospital with an active outpatient and clinic facility. Liberal vacation, sick leave and holiday benefits. Salary commensurate with experience. Apply Administrator, Sunnyview, 124 Rosa Rd., Schenectady 8, N. Y.

QUALIFIED PHYSICAL THERAPIST for well equipped department in a modern 350-bed general hospital. Paid vacation, sick leave, 6 holidays, salary open. Apply Sister Mary Aquin, Administrator, St. Rita's Hospital, Lima, Ohio.

IMMEDIATE OPENING for physical therapist, full time, Cerebral Palsy Center, strictly outpatient. Forty-hour week, paid vacations and sick leave, holidays. Center operates in general children's hospital. Starting salary $400.00 to $450.00. Living accommodations in hospital available if desired. Contact, John C. VanMetre, Superintendent, Northern Indiana Childrens Hospital, South Bend, Indiana.

QUALIFIED PHYSICAL THERAPIST to work with staff of Visiting Nurses and one other physical therapist giving treatment to homebound patients; 5-day 40-hr. week. Liberal personnel policies. Salary dependent upon experience. Write Dir., Providence District Nursing Association, 157 Waterman St., Providence 6, Rhode Island.

(continued on next page)

Classified WANT-ADS

FEMALE: graduate physical therapist. Room, board. Paid vacation, semi-yearly increments. Near Atlantic City. Write Mrs. L. S. Drum, Supt., Betty Bacharach Home, Longport, N. J.

QUALIFIED PHYSICAL THERAPIST needed for 300-bed general hospital with expansion program underway. Vacation, sick leave and social security benefits. Salary open. Apply Alma F. Martin, Long Beach Community Hospital, Long Beach, Calif.

POSITIONS AVAILABLE for qualified physical therapists for active rehabilitation department in modern 500-bed, chronic disease hospital. Salary open. Four weeks' vacation. Sick benefits. Lunches. Apply Superintendent, St. Barnabas Hospital, New York 57, N. Y.

Physical Therapist for Cerebral Palsy Center. Salary commensurate with experience. Five-day week, Monday through Friday, 8:45 A.M. to 4 P.M. Four week's paid vacation, six paid holidays, sick leave. Yearly merit increase. Excellent opportunity in well-equipped Center. Write Mrs. Margaret C. Hogan, Director, Cerebral Palsy Training Center, City Hospital, 25 Park Ave., Binghamton, N. Y.

Physical Therapist, STAFF POSITION, male or female. Salary commensurate with experience. Five-day week, liberal vacation, holiday and sick leave. Social Security. Apply Personnel Director, Crotched Mountain Rehabilitation Center for Children, Greenfield, N. H.

Immediate placement for qualified PT for large CP Out Patient Center 30 miles from NYC. Comprehensive services including Medical, Educational and Vocational. Five day, 35 hr. wk. Salary commensurate with experience. Uniforms and laundry provided. Write Coordinator United Cerebral Palsy Association for Nassau County, 380 Washington Ave., Roosevelt, N. Y.

QUALIFIED THERAPIST for outpatient rehabilitation center. Salary commensurate with experience. Contact Dr. Eugene Moskowitz, Director, Mobility, 427 Main Street, New Rochelle, New York.

PHYSICAL THERAPIST for modern hospital, located on Chicago's northshore near parks and beaches; excellent starting salary; liberal employee benefits; free Blue Cross and a university tuition refund plan. For more information, contact Personnel Director, Louis A. Weiss Memorial Hospital, 4646 Marine Dr., Chicago, Illinois.

NEW YORK CITY 650-bed general hospital. Excellent oppty qualified P.T. Modern expanding dept. Liberal personnel benefits include 4 weeks' vacation, 11 paid holidays, Blue Cross, life insurance. Personnel, Montefiore Hospital, 210 St. & Bainbridge Ave., Bronx 67, N. Y.

STAFF PHYSICAL THERAPIST for medical school hospital. Active, varied, in- and outpatient service. Good working conditions. Write: Gwynn Brice, Univ. of Oregon Medical School, Portland 1, Ore.

QUALIFIED PHYSICAL THERAPIST for offices of two orthopaedic surgeons. Write Dr. W. M. Watts. 5 Ravenscroft Dr., Asheville, N. C.

OPENING in CEREBRAL PALSY SCHOOL in new air-conditioned building. Very good salary and liberal personnel policies. Experience in cerebral palsy desirable. Write: Mrs. A. M. Inman, Director, 1601 Gatewood Ave., Greensboro, N. C.

WATERBURY, CONN.: Two therapists for expanding department, some outpatient cerebral palsy and polio work. Wide variety of cases. Medical director is a physiatrist. Excellent working conditions and personnel policies. Forty-hour week, salaries open. Contact Miss Katherine A. O'Connell, R.N., R.P.T., Waterbury Hospital, Waterbury, Conn.

EXPERIENCED PHYSICAL THERAPIST wanted to initiate the program in two county area in cooperation with general hospital and orthopedic clinic. Some travel. Salary $5,100 plus travel. Write: Eleanore W. Malone, Program Coordinator, N. C. Society for Crippled Children & Adults, Box 839, Chapel Hill, N. C.

PHYSICAL THERAPIST: Graduate of an approved school wanted to head P. T. department. Excellent facilities in new 300-bed general hospital section of a public mental hospital. Orthopedic, dermatologic and psychiatric problems. Qualified physiatrist supervisor. Salary $3,497. Apply to Dr. W. E. Barton, 591 Morton St., Boston, Massachusetts.

WANTED: QUALIFIED PHYSICAL THERAPIST—both inpatients and outpatients, including general rehabilitation orthopedic, neurosurgical cases, varied physical disabilities, children and adults. New equipment for hydrotherapy. Forty-hr. week, liberal personnel policies, female preferred. Write: Sister M. Raymond, Adm., Holy Family Hospital, Manitowoc, Wisconsin.

PT CONSULTANT wanted for staff of Illinois Association for the Crippled. Experience required in PT techniques, knowledge of public relations and community relationships would be helpful. Must have car, and be willing to travel throughout the state of Illinois. Contact: Mrs. Elizabeth L. Jameson, Program Consultant, Illinois Association for the Crippled, 2325 South 11th Ave., Broadview, Illinois.

WANTED: FEMALE STAFF therapist for department serving eight hospitals in University research and teaching center. Patients primarily orthopedic, many children. Treatments stress rehabilitation work using therapeutic pool, and functional training room as well as usual modalities. Forty-hour work week; 3 week vacation; 2 week sick leave; excellent salary with good advancement scale. As part of the University, therapists have access to its recreational and teaching facilities. Write to Joan Colligan, Chief Therapist, University of Chicago Clinics, 950 E. 59th, Chicago, Ill.

(continued on next page)

Classified WANT-ADS

NEEDED: QUALIFIED physical therapist for staff position within agency or for home treatment program. Apply to Director, Curative Workshop, 615 N. Capitol, Lansing, Michigan.

AURORA, ILLINOIS: Qualified PT wanted for expanding rehab. program. No experience necessary; female preferred. Generous personnel benefits, interesting case load, physical disabilities, children and adults. Contact: Mr. Sam Alschueler, 32 Water St., Aurora, Illinois.

QUALIFIED PHYSICAL THERAPIST for medium sized general hospital with well equipped P. T. department averaging 6 to 8 treatments a day, active and growing crippled children's program and rehabilitation service. Splendid medical staff, charming small Southern city less than two hours drive from Gulf of Mexico. Good working conditions. Apply to Director, John D. Archbold Memorial Hospital, Thomasville, Georgia.

WANTED: PHYSICAL THERAPIST to direct treatment center for cerebral palsy patients in an industrial area of approximately 100,000 population. Center fully approved by local medical society, United Health Foundation of Lorain, United Appeal of Metropolitan Lorain. Therapy at center also includes occupational and speech. Will be expanded to make a rehabilitation treatment center for all crippled children and adults in Lorain area. Usual personnel policies. Salary open. Please contact: Thomas E. Sisk, Treasurer, 2140 East Erie Ave., Lorain, Ohio.

IMMEDIATELY: STAFF therapist for Easter Seal Clinic in county medical center. Rehabilitation and general medical services including Amputee Clinic. No C. P. cases. Excellent salary. Apply: Martin S. Garfinkel, R.P.T., 2000 Jefferson St., Jacksonville 8, Fla.

WANTED: PHYSICAL THERAPIST 550-bed general hospital. Modern department of Rehabilitation and Physical Medicine. All types of cases treated. Good salary. Social security and pension plan; 40-hour week. Apply Administrative Assistant, the Reading Hospital, Reading, Pennsylvania.

PHYSICAL THERAPIST: Experienced, to work as a member of a medical team in a progressive department of health crippled children program, visiting therapy centers. Excellent supervision provides educational opportunities. Liberal personnel policies. Merit system coverage with job security. Write Glendon A. Scoboria, State Personnel Director, State Office Building, Hartford, Connecticut.

QUALIFIED PHYSICAL THERAPISTS for immediate placement in established Crippled Children's Hospital and rapidly growing comprehensive Rehabilitation Center treating wide variety of patients. Well equipped therapy department with pools and adequate space. Employee benefits. Maintenance if desired. Write: Jack E. Pearson, Morris Memorial Hospital and Rehabilitation Center, Milton, West Virginia.

PHYSICAL THERAPIST: Salary $377—$453; 3 weeks vacation, sick leave, retirement. Test given anywhere in the United States. Vacancy in new cerebral palsy school. Apply Contra Costa County Civil Service, Box 710, Martinez, California.

WANTED: Physical Therapist; starting salary $400.00 to $450.00 per month depending upon experience; vacation with pay, legal holidays, generous sick leave and other benefits; midwest city with a population of 35,000. Address replies to Box 26, care of the Physical Therapy Review, 1790 Broadway, New York 19, N. Y.

WANTED: Physical therapist to manage progressive rehabilitation program in a modern, 400-bed convalescent hospital. Excellent salary, pension plan, paid vacation, 5-day week, sick leave, legal holidays. Write: Berks Heim, Box #1495, Reading, Pa.

WANTED: PHYSICAL THERAPIST, 1 year or more experience for STAFF POSITION. To work with children up to 21 years of age. Graduate of accredited school; good starting salary with regular increases; forty-hour week, paid vacation, sick leave; 100-bed orthopedic hospital, new modern equipment. Write to Miss Anna B. Quinn, R.N., Administrator, Kosair Crippled Children Hospital, 982 Eastern Parkway, Louisville 17, Kentucky.

PHYSICAL THERAPIST for general hospital in Southwest Cleveland. Excellent starting salary with merit increases; opportunity to become Department Head within a year. Liberal employee benefits include Social Security and opportunity to join Hospitalization, Group Insurance, and Retirement Plans. Forty-hour week, Monday through Friday. Write: Miss Lou Ann Aukens, Personnel Director, Fairview Park Hospital, 18101 Lorain Avenue, Cleveland 11, Ohio.

Classified WANT-ADS

RATES

The rate per insertion is $1.00 per line. Typewrite your advertisement carefully and count 50 characters and spaces per line.

ALL WANT-ADS MUST BE PAID FOR IN ADVANCE. Make checks or money orders payable to the American Physical Therapy Association.

Closing date for copy and cancellations is two months preceding publication date.

Institutions or physical therapists who do not wish their identity known may arrange for Blind Ad Code No. All such want-ads must include the following which will be counted as 2 lines:

Address replies to ..... care of **The Physical Therapy Review, 1790 Broadway, New York 19, N. Y.**

IMPORTANT

It is understood and agreed that the publisher shall have the right to reject or change the wording of any advertisement which in the opinion of the Editorial Board shall not be in agreement with the ethical standing of this publication.

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ULTRASONIC THERAPY UNIT

As with all Burdick equipment, the engineering and construction of the UT-1 Ultrasonic Unit provide maximum control and operating ease as well as clinical effectiveness.

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HERE ARE FEATURES YOU WILL WANT IN YOUR ULTRASONIC EQUIPMENT:

1. Double Scale Meter — registers intensity (watts per square centimeter) and total output.
2. Coupling Signal — audible signal tells operator when contact is inadequate.
3. Single Continuous Power Control — no tuning required.
4. Preset Switch — intensity output can be preset by using push button switch and power control.
5. Automatic Timing Switch — 0-15 minutes.

Add to these the distinctive right-angle applicator for easy administration and a highly flexible connecting cable and you arrive at the ultimate in ultrasonic therapy.

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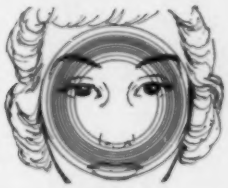
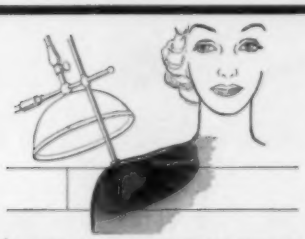
Check these major advantages of
Raytheon MICROTHERM® Microwave Diathermy

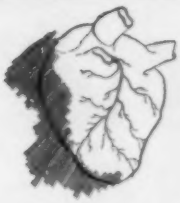


1. **PRECISE HEATING,** precisely controlled—areas as small as the eye, as large as the back, treated in exact patterns.

2. **MORE EFFICIENT ABSORPTION** of energy — far faster than shortwave energy. Result: more thorough, efficient therapy.



3. **DEEPER HEAT PENETRATION,** with minimum surface heat—as high as 106.27° F. at two inches; subcutaneous tissue only 1° to 2° higher.



4. **FASTER, GREATER INCREASES** in blood circulation—on the order of 200% through a local area; 100% through an entire extremity.

FOR COMPLETE FACTS on the 11 major advantages of Raytheon Microtherm Microwave Diathermy, speak to your dealer. Ask for a complete office demonstration. It must satisfy your most demanding requirements.

Excellence RAYTHEON *in Electronics*

RAYTHEON MANUFACTURING COMPANY
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